

COAL AGE

The Weekly Journal of the Coal and Coke Industries

Volume 18

NEW YORK, THURSDAY, JULY 22, 1920

Number 4

Events and Progress of the Week

PROGRESS through co-operation has marked the course of events in the coal situation the past week. The coal operators and the railroads, who supply and move the coal; the Northwest and New England, representing the sections of the country in greatest need of fuel, and the Interstate Commerce Commission, for the Government, have been working together to find a solution of the most serious condition as regards coal that has ever confronted the country. The source of the trouble has been definitely placed as lack of railroad transportation, the spots most seriously affected located, the inequalities in distribution defined and studied, and through the energetic and determined stand of the coal men a solution is being worked out and perhaps by the time this is published the details of the plan will have been agreed upon by all concerned and made public.

The first and most difficult task confronting the representatives of the coal industry has been to bring the various interests to a common understanding of the problem. The last few weeks have seen the railroads accusing the coal operators of upsetting distribution in their desire for profits, the New England interests charging the National Coal Association with bad faith, the coal men saying that the fault is all with the carriers and the Interstate Commerce Commission watching this "buck passing" and wondering what to do next. The public has seen the evidence of trouble in the high prices and shortage of coal and is willing to believe almost anything that is said about the coal operators, the railroads and the Government.

Real progress was therefore made last week when the representatives of coal producers and the railroads got together on a program to increase production and correct distribution. Two days of conference among the soft-coal operators of the country, called together by the president of the National Coal Association, served to bring in line this element in the situation, and led to the appointment of a committee with full power to act for the industry in the conferences with the railroad executives that followed. Three days, from Wednesday to Friday, were spent by the representatives of coal and the roads in their New York discussion, as a result of which a definite proposal was made to the Interstate Commerce Commission on Monday, July 19. As this is written the details of the plan have not been announced and it is not known what action the Government has taken or will take. We have reason to believe, however, that unless the lawyers for the commission find some difficulty with the order that is proposed, not foreseen by counsel for the operators and the railroads, the method offered will be accepted and followed. It is understood that the solution will satisfy the Northwest and it is hoped that New England will accept it as a way to obtain coal needed in that market.

It is now the duty of every shipper of coal, every railroad official and every consumer to acquaint himself

with the details of the plan and the orders, to believe in the good faith and wisdom of those who have labored so diligently to find this solution and to support with might and main, in spirit and in letter, such orders as are issued from time to time to make effective this solution of our coal problem. If you are a shipper of coal, have in mind the urgent needs of the Northwest and the Northeast and anticipate the situation by increasing the movement in those directions. If you are a coal consumer, unload your cars in record time, and buy your coal in the field that will involve the least transportation to get it your plant. And if you are in New England, buy your coal before you complain that you are not getting what is coming to you.

Service Order No. 9 was issued Tuesday, July 13, by the Interstate Commerce Commission as a result of hearings conducted the previous week on the effect of Order No. 7, giving preference to coal in the use of open-top cars. The latest order extends the priority from thirty to sixty days from June 21, thereby meeting the wish of the coal industry for better car supply in order to meet the demand for coal. The order went further, however, and provides that assigned cars be given public utilities and other public institutions to insure a supply of coal sufficient for current requirements. It is reported that applications for assigned cars already made under the provision of this order in some fields have so reduced the supply of coal available for other commercial consumers that the spot price has advanced from one to two dollars within the week.

Getting at the Root of the Trouble

INCREASED production of bituminous coal as soon as it can be attained and better distribution at once are the two aspects of the coal situation urged for consideration by *Coal Age* a month ago. We said then that there are these two problems and no better way could be found than to call the coal operators into the game and let them work with the railroads and the Government. Just this has come to pass, and we believe that conditions are on the way to improvement as a result.

Deficiency in production in the large producing fields of Pennsylvania, Ohio, Maryland, West Virginia, Virginia, and eastern Kentucky—the Eastern fields—since April 1 is the primary cause of the coal shortage, the effects of which are felt everywhere, but more acutely in the East. Because coal in sufficient quantities has not been produced in the East, the Northwest is behind in its receipts, New England is short and every consuming section east of the Mississippi River is feeling the pinch. High prices are not the cause, but the effect—the "fever" indicating that something is wrong.

Compared with 1919 the production of bituminous coal in the whole United States has this year shown

an increase of about 21 per cent. The Eastern fields have increased but 15.6 per cent, however, compared with an increase in the remainder of the country, including the large fields in Illinois, Indiana, Alabama and the far West, of 33 per cent. Comparison of this year with last is not particularly significant, because last year, 1919, the demand for bituminous coal was below consumption by reason of the large stocks held over from the war year, and consumption was below the present level as a result of the general slump of from six to eight months that followed the armistice. It is a palpable mistake to infer that because more coal has been produced so far in 1920 than in the same period in 1919 there is no shortage.

The year 1918 recorded the greatest production of bituminous coal and Pennsylvania, West Virginia, Illinois, Ohio, Kentucky and Indiana, the six leading states, were among the fifteen out of the thirty states producing coal that set new high records in output in that year. Comparing 1918 with 1917, the increase in production was largely in the Eastern fields and each section of the country was plentifully supplied with fuel at the end of 1918. Comparing 1917 with 1916, however, the increase in total from 501,000,000 to 551,000,000 tons was largely in the Middle and Western states. The East suffered a real shortage in the autumn and winter of 1917 as a result. The condition today is similar to if not almost identical with that of 1917.

Production in the Eastern fields this year has been 9 per cent below 1918, in the remainder of the country less than 5 per cent lower, and the country as a whole has shown a drop of 7 per cent compared with the maximum of 1918. Whereas the Eastern fields should now be producing not less than 28,000,000 tons of bituminous coal a month, which is the rate reached in January and again in March of this year before the strike on the railroads, production from these fields in April, May and June was at the rate of only 22,000,000 to 23,000,000 tons per month. There is a real shortage here of about 5,000,000 tons a month, and production must be increased between 20 and 25 per cent in these Eastern fields.

This increased output in the East must not be obtained at the expense of the rest of the country, as for instance by taking cars from the West for the East. The rate of production in the Middle West, West and South is not now more than is required for normal markets and not sufficient if Illinois is to help supply the deficiency in the northwest by all-rail shipment. The output from Illinois mines since April 1 has been at the rate of about 5,000,000 tons a month, the mines working only from twelve to fourteen days a month, as against a production of better than 7,000,000 tons per month with mines working more than twenty days, if what is considered the normal requirements are to be met.

The situation may be more clearly understood by stating that no estimate of requirements for bituminous coal in the calendar year 1920 exceeds 550,000,000 net tons, or about equal to what was produced in 1917. The rate of production now for every group of states except Pennsylvania, Maryland and West Virginia is approximately equal to that of 1917, and the deficiency, amounting to an annual rate of about 40,000,000 tons, falls in the coal fields of those states.

It is understood that the railroad executives are now fully cognizant of these facts and that they are

of the belief that production in the East can be increased to the necessary 28,000,000 tons per month, particularly as the wage board will report its findings in a few days and the men are expected to go back to work again. Unless the men do return to work in numbers and with a good spirit it is useless to hope for very great improvement in transportation, for the officials of themselves are powerless without the co-operation of labor.

Unequal distribution is indicated by the fact that in the first five months of this year less than 1.5 per cent of the shipments from the Eastern fields have gone to the Lakes, compared with nearly 5 per cent last year. Shipments to tidewater from these fields averaged from 11 to 13 per cent of the total in 1917, 1918 and 1919; in the first five months of last year they were about 12 per cent, compared with 15 per cent from January to May this year.

With a production as great as in 1917, mines in Ohio have this year shipped coal to consumers in Michigan and Ohio at a rate greatly in excess of 1917, and it is understood have this year nearly equalled the shipments of the banner year, 1918. This increase must have been at the expense of the Lake movement. Under these circumstances we can appreciate the necessity for and ultimate effectiveness of a system of embargoes to force coal to the Lakes, which it is reported is the foundation of the plan which the coal operators and railroad officials will suggest for the solution of the problem.

The program of intensive service announced by the railroad executives last week, together with the correction of unequal distribution through the proposed partial embargo plan of the coal operators, is expected to relieve the situation. Just what the effect will be on spot prices is yet a matter of speculation. Much will depend on the increase in production the railroads can bring about and on the details, as yet unannounced, of the embargoes.

Will They Never Learn?

APPARENTLY the advocates of Government ownership die hard. The Ferry Plan, under which the United States would operate four anthracite mines, one washery and Heaven alone knows how many bituminous mines, washeries and coal yards, shows that the former advocates of Government ownership are not yet all convinced that this measure does not serve workman, employer or consumer. How can the public learn? Apparently Mr. Ferry has not learned, and he should be reasonably well informed, for has he not been chosen by the mine workers as their representative?

If Mr. Ferry had wandered on the sad history of Government ownership in his extensive reading he could not have ventured to call it *his* plan after it had been tried out so often and failed so ignominiously. He cannot sustain letters patent or copyright, for they cannot be filed for two good reasons, both sufficient—first, that somebody invented it before him; and second, that it is not within the limits of reason to believe it workable. This Garabed Girgossian cannot by any possibility get even a fraudulent title to the doubtful honor of discovering Government ownership.

The U. S. Government has tried to mine coal at mines located at Williston, N. D., and at Eska, Alaska. We do not pretend to know anything of the latter mine—whether successful or not—except that the mines were

run till lately by an exceedingly competent man, Sumner S. Smith. The Williston plant, however, was run at a high cost and not in accordance with the plans advocated by other branches of the Government. It was conducted in violation of the enlightened laws of many states. Coal was shot off the solid and the ventilation was inadequate; moreover, coal was left in the roof. Nevertheless it was found that the fuel was produced at an abnormally high cost, owing, among other matters, to heavy overhead.

Surely we have learned that Ferry plans or rather "Fourier" plans, for with the Socialists do they originate, do not work. Mr. Ferry says the Government does not know what coal costs, but it has the most accurate of figures as obtained from returns made to the Federal Trade Commission. If there is any lack of knowledge it is because the returns made are below the real cost production, which on any honest return would include interest on investment. That item is left out in the present returns, though if the industry were Government-owned the interest on the investment would have to be paid. If, however, by Mr. Ferry's statement we are to infer that there should be one standard cost of producing all coal, whether from strip pit or from deep pitching beds, then Mr. Ferry is never going to be satisfied. The variations in production cost are immense, even in the anthracite region, and still more variant if both anthracite and bituminous are considered together.

As for the relationship between mining and selling price, Mr. Ferry's story looks interesting but unconvincing. Today we do not buy run-of-the-mine for domestic use; we insist on lump, and from the anthracite region stove and egg. If we will not take the "whole critter" we must pay more for the steaks.

Unfair Criticism in the Newspapers

FROM time to time unfair, distorted and incorrect statements are printed in the public press concerning the methods of operation, the production and the profits arising from the mining and sale of anthracite.

For the past two weeks during the sessions of the Anthracite Coal Commission in Scranton statements have been made in the editorial columns of the newspapers as to the profits of the coal-mining companies. These declarations have been based on some exhibits that the United Mine Workers of America desire, but have not been allowed as yet, to place before the commission. No mention should have been made concerning these exhibits, as they have not yet been accepted as evidence, and surely common courtesy should cause the newspapers to refrain from publishing them or the information they contain until they have been accepted. It is much to be feared that the intention is to force the hands of the commission into accepting the exhibits as testimony.

But to make matters worse, the exhibits have been grossly misquoted. If they had been studied carefully the erroneous statements that have appeared in the editorials in question would not have been made. Thus two papers state that the coal companies are earning profits as high as 500 per cent. If the editors, or the writers of the editorials, had studied these exhibits they would have found that the union merely stated in its exhibit that the profits of one of the coal companies had increased approximately 500 per cent. It did not

state that the profit received attained that figure or anywhere near it. There is all the difference in the world between that assumption and the truth.

For in the case quoted the mine workers' exhibit shows that in the years 1912-14 the company made a profit of 6.8c. per ton and in the period 1916-18 made a profit of 36.4c. per ton. Thus the increase in profit was 435.3 per cent as against an actual profit of 2.4 per cent in the first period and a profit of 7 per cent in the latter period. There is a considerable difference between a profit of 7 per cent and one of 500 per cent, which is the profit which the editorials quoted would establish as the good fortune of the coal companies.

Interfering with Supply and Demand

SUPPLY and demand, the law by which business in this country is presumed to operate, may be interfered with in more than one way. During the war the fixed prices for coal and arbitrary distribution completely set aside this favored law of action. Today, as William B. Colver ably pointed out in his address at Atlantic City recently, the law of supply and demand cannot function because transportation, which normally brings the supply to the demand, has failed. As long as the railroads cannot haul more coal there is no point in high prices as a means of bringing production up to meet the ever-increasing needs of the consumer. No matter what the price inducement offered, more cars of coal will not be produced, because transportation is the limiting factor and not mine capacity. Under these circumstances there is no economic justification for prices such as are current today for free coal.

The coal industry knows this and were there a way by which the real men in the trade could curb such reckless bidding for coal, it would be done. The one glorious example of voluntary price fixing indulged in by the soft-coal industry, the famous Lane-Peabody agreement of 1917, had such an unhappy ending that no one can blame the coal men for hesitating before trying the experiment again.

There is another factor interfering with the law of supply and demand that is not generally recognized as yet. We refer to the manifestos of the Attorney General warning of prosecutions of profiteers in coal. His agents are busy in the large cities going through the books of the larger companies, where nothing will be found amiss. No evidence has yet come to hand of visits to the small one-night-stand producer in the hills, who is the real offender.

The announced intention of the Department of Justice to seek out and prosecute those charging excessive prices for coal has operated not to lower the price to one section of the country really in need of coal, that is, New England, but is operating to prevent coal moving there. Shippers of coal at Hampton Roads and Baltimore have no objection to charging a foreign buyer \$10 or more for coal, but will not transact business with a New England buyer at that figure because of the profiteering clause in the Lever Act. In other words, the law of supply and demand is again upset and there is no open market for coal at these ports as far as New England is concerned. New England is urged to enter the market and pay the price, but her money is no good. We thus see one department of the Government interfering with the flow of coal to New England while another is trying by priority order to increase the movement.

Robbers Flee with Coal Mine's \$7,000 Payroll

In a mine of the Vesta Coal Co. at Ritcheyville, Pa., four robbers held up the paymaster and mine foreman July 13 and fled with the \$7,000 payroll. Frederick Sayo, paymaster, and Thomas Woods, foreman, met the robbers in the opening of the mine. Woods drew a revolver, but one of the highwaymen knocked it from his hand with a club. Sayo and Woods were then covered with revolvers, bound with heavy ropes, and carried into a side passage in the mine. An employee of the mine has been arrested.

Conditions Now Normal on New York Piers

Normal conditions have been restored on the coastwise steamship piers of New York City through the creation and operation of the Citizens Trucking Company, Inc.

Corporation Blanks Available

Forms for filing returns of capital stock of domestic and foreign corporations on or before July 31, 1920, are now available at offices of collectors of internal revenue.

Editor of League of Nations Labor Bulletin Chosen

The Department of Labor has officially announced that Dr. Royal Meeker, U. S. Commissioner of Labor Statistics, has resigned and will leave for Geneva, Switzerland, July 31, to take up the duties of editor in chief of the monthly bulletin of the international labor office of the League of Nations.

Switzerland to Get German Coal

Switzerland has concluded a new commercial treaty with Germany, under which Switzerland will get about 40,000 tons of German coal monthly.

Steamship Company Buys Coal Mines

For the purpose of obtaining a reliable and cheap source of supplies for bunkers for the company's steamers and to provide cargoes for its vessels, the Oriental Navigation Co. has purchased the Williams Pocahontas Coal Co., with mines in West Virginia. The company was induced to take this step because of the difficulty of obtaining a reliable and sufficient supply of coal.

Advises Labor How to Vote

Frank Morrison, secretary of the American Federation of Labor, in addressing the convention of the American Flint Glass Workers' Union at Atlantic City, admonished the delegates to go out and "elect our friends and defeat our enemies."

"We have a wonderful chance this fall to put the right men in," he said. "Labor today is a power to be reckoned with. Twenty-two years ago we had a membership of 265,000, and today we have 4,078,000. There are enough votes there to swing a Presidential election."

Pig-Iron Producers Urge Return of Government Fuel Control

In its weekly summary of conditions in the iron market as of July 15 the *Iron Age* says: "It remains to be seen how far the shutdowns will go which steel companies said were inevitable if an extension of

NEWS BRIEFS

Terse Items Chronicling Events of Interest to the Industry

Service Order No. 7 came. Some relief is given by exempting from the order all flat-bottom gondola cars or cars which on June 19 had been definitely taken from coal-carrying service, this being one modification asked by iron and steel interests. In some districts, however, this interpretation has already been in effect. So far as the merchant pig-iron trade is concerned, the soaring of fuel prices has caused as much concern in the past week as the car troubles to which high fuel is chiefly laid. There is an urgent call in some quarters for a return of the Government control of fuel that was given up on April 1, producers of pig iron viewing with dismay sales of prompt coke at \$19 this week, while bituminous coal has brought from \$10 to \$12 at the mines. The effect of such prices on dependent industries will be serious as corresponding levels are reached in pig iron."

New Loans to Railroads

New loans to railroads of the country amounting to \$17,022,273 have been approved by the Interstate Commerce Commission, making an aggregate of \$22,086,875 so far certified to the Secretary of the Treasury for payment out of the \$300,000,000 "revolving fund" provided by the Transportation Act. The loans include: Illinois Central, \$4,511,750; C., B. & Q., \$4,446,523, and A., T. & S. F., \$5,493,600.

Textile Manufacturers Curtail Production

In its weekly review of conditions in textiles and allied lines as of July 17 the *Dry Goods Economist* says: "Manufacturers of textiles are curtailing their output and making goods only for orders. Transportation continues to be hampered by shortage of rolling stock and by lack of labor. New cars and locomotives are in course of construction, but no material increase in the movement of commodities is expected during the next six months or more."

Lignite Fuel To Be Used in Making Paper from Straw

Plans are reported to be under way for the establishment of a large paper mill in southern Saskatchewan to utilize vast quantities of straw in the province. Lignite fields in this section, it is said, will provide the necessary fuel.

Coal Shortage Darkens Hornell

With its last pound of coal exhausted, the Hornell (N. Y.) Electric Co. on the afternoon of July 13 shut off all but one circuit in the city. Streets cars were stopped and only a few essential industries kept going. They were expected to be cut off and the city to be in darkness that night. Inability to obtain coal at any price is given as the reason for the suspension of service.

Commission on Car Service Rearranged

R. H. Aishton, president of the American Railroad Association, has announced a new plan of organization of the Commission on Car Service under which each commissioner is to have charge of a specific feature of the work and the commission as a whole is to report to the Special Committee on Car Service Matters of the Association of Railway Executives, of which Daniel Willard is chairman, through W. L. Barnes, special assistant.

New York Public Utilities Get More Coal

During the week ending July 17 the Brooklyn Edison Company received 32,000 tons of soft coal and gains were made by several other companies which resulted in placing New York public utilities above any immediate fear of a shutdown. The weekly report of the utilities filed with the Public Service Commission shows that under the pooling system all of them have enough coal to continue normal operation for about fifteen days, with the prospect that improvement in the situation will continue.

How Gob Fires Are Fought and Prevented In Pictou County, Nova Scotia*

Crushed Pillars in Thick Seams Cause Many Gob Fires—Should Smoke Be Seen, No Time Is Lost in Sealing Up—In Reopening Care Is Taken to Keep Air from the Heated Area Which Might Cause a Rekindling of the Fire

BY F. E. NOTEBAERT†
Stellarton, N. S.

A LARGE portion of the Pictou County coal field of Nova Scotia is underlaid with thick coal beds, some of which have been known and worked for many years. These include Foord bed, 40 ft. thick; the Cage Pit bed, 18 ft. thick; the Third Seam, which varies from 14 to 17 ft. in thickness, and the McGregor, the thickness of which at certain places exceeds 22 ft. These four are the older measures and are known as the beds of the Stellarton district. Some of them have been worked for over one hundred years.

When, in the winter of 1915, a borehole was sunk by the Acadia Coal Co., a series of thirteen new beds were added to those already known. These as well as the upper ones are as a rule comparatively thick. They include one 21 ft. bed, one 28½ ft. bed, one bed 20 ft. 4 in. in thickness, one bed 24 ft. 2 in. thick and one 23 ft. thick. These beds were found intermingled with thinner ones, which have a thickness of 3 ft. 6 in., 5 ft., 6 ft. 2 in. and 4 ft. 11 in.

THIRTEEN SEAMS HAVE 232 FT. OF COAL

Undoubtedly had this hole been sunk further, other beds would have been discovered, and had boring been continued still further on, the drill probably would have entered the Westville coal measures. These have often been considered as being of the same geological horizon as those of the Stellarton district but thrown in a south-westerly direction by a displacement of great amplitude, known as the McCullough fault. The existence of this disturbance has never been proved. Without certain knowledge, although equally without doubt, the existence of the much discussed McCullough fault may be denied and the Westville seams accepted as being only a regular continuation of the series of Stellarton beds, thus adding an enormous tonnage of coal to that already known to exist in this district.

The angle of dip of what might be called the main coal field of Pictou County is steep in comparison with that of the majority of the Cape Breton measures. At the southern end of the Stellarton field the beds outcrop at an angle which varies from 21 to 23 deg., and dip northwardly until they reach a basin line. From that

point they rise in a northerly direction at inclinations varying from level up to 90 deg., and in certain disturbed sections of the northern portion of the field they are completely reversed, the footwall resting on top and the hanging wall lying beneath the coal bed.

The angle of dip, the thickness of the bed, the fact

that the space left open by the working out of the coal is not flushed or filled require, almost necessarily a method of working by room and pillar, retreating from the limit of the field toward the main slope, leaving a crushed area behind the working faces.

As an immediate consequence of such a system a more or less important

tonnage of coal is abandoned in the gob. This coal, being subjected to the heavy pressure of the roof, is crushed, and if the oxygen of the air is permitted to come in contact with this loose material for a sufficient length of time, much heat is sure to be generated. This ultimately will produce a gob fire. Such fires are frequent in the beds of the Stellarton district, or, more correctly, they would be frequent if special precautions were not taken.

These precautions are of three kinds, namely: (1) Reduction in the quantity of combustible matter left crushed in the gob, the presence of which is the primary source of the fire; (2) reduction of the time of contact between the air (oxygen) and the crushed coal in the gob; (3) emergency measures consisting of heavy stoppings that will permit of the isolation and sealing off of any sections or parts of sections threatened with or affected by fire. Such emergency measures naturally are expensive. Experience, however, has shown that they may be after all the cheapest and safest means of preventing gob fires or of extinguishing them when once they have started.

WOULD FLUSH GOB IF COST WERE MODERATE

The amount of combustible matter left in the gob when working out thick beds can be reduced to an unimportant quantity only by flushing or hydraulic stowage. At the present time, however, it is questionable if in long slopes with an abnormally high cost of labor as compared with the selling price of coal the time has yet arrived when hydraulic gob flushing can be introduced in the Nova Scotia mines with financial profit. In the mines of Pictou County, however, the flushing system is and will be the only one by which, if all the

In some mining regions the main problem is how to "bleed" the gobs of gas and ventilate them so as to lower the gas percentage. In the Stellarton country the gob must not be ventilated but must be kept air-free or otherwise progress will be rapid from gob-stink to gob-smoke and thence to a gob fire.

*Abstract of a paper read before the Mining Society of Nova Scotia, Glace Bay, N. S., and entitled "Fighting Mine Fires in Pictou County, Nova Scotia."

†Acting general manager, Acadia Coal Co.

coal is recovered, gob fires can be completely avoided. It might be mentioned also, incidentally, that with hydraulic flushing, dust explosions will be things of the past.

TWO MEANS OF LESSENING GOB FIRES

The most efficient means of reducing the contact of air with the crushed coal in the gob is to advance the working faces as rapidly as possible so as to bring the



FIG. 1. F. E. NOTEBAERT
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roof down. This also avoids filtration of air through the gob. It can be most advantageously accomplished by retreating toward the slope. By ascensional ventilation, in which the air is carried directly to the bottom of the pillar section and exhausted from its upper end without passage, through the gob, further assurance of freedom from gob fires is secured.

To reduce a prolonged contact of the air with the gob requires also that the gob resulting from the working out of a pillar section be properly and completely sealed off so as to avoid, so far as possible, filtration of air into the gob and passage through it, with oxidation of the crushed coal found therein.

It might be interesting to point out that although commonly described as being strongly liable to spontaneous combustion, the coals of Pictou County, particularly those of the Stellarton district, are only slightly subject to self-ignition. This is because of their low percentage of sulphur, which in most cases, does not exceed one per cent.

SMOKE SHOWS THAT CONDITIONS ARE SERIOUS

Yet, though all precautions are taken against gob fires, they nevertheless will occur sometimes. Usually the first indication of fire is a slight odor of coal distillation. According to the nature of the bed and the general conditions causing the fire, the odor will persist for hours or for days, and cases have been known where it has persisted for weeks without showing any increase of temperature or any sign of smoke, which are the next indications of a gob fire.

When smoke appears, conditions are always serious, because even if the bed is not liberating explosive gas, the distillation of coal with restricted amount of air will generate carbon monoxide, which is poisonous and

explosive. It is at this stage that good judgment should be exercised and a quick decision made.

When smoke has made its appearance the tendency usually is to continue carrying out the dispositions which have been adopted in the earlier phases when the only indication of a gob fire was the odor of distillation. In many instances this plan may have been successful.

Frequently, however, the fire has already been allowed to smolder too long. The heat has increased, and flames have made their appearance. Conditions then may be termed highly dangerous, as all the elements necessary to provoke an explosion are present. If conditions have unfortunately been allowed to develop thus far, two remedies yet remain, either one of which has a large element of chance. The natural antidote for flames is water, applied by sprinkling or by flooding. Flooding the section where the fire is located usually will take much time, during which the fire continues to progress, kept alive by the action of the fan. Furthermore flooding can be adopted only as an extreme measure.

As a matter of fact it is almost always worse than a complete and forced abandonment, except in those cases where the flooding may be restricted to a small area. This is true because to the damage resulting from fire is added the destruction caused by the water, and after all the fire is not rapidly controlled.

Sprinkling will in almost every case be a failure because the water will reach only the outside manifestations of the fire (the flames) without gaining access to the heart of the trouble, which is well inside the gob. Flaming gob fires have been successfully extinguished by sprinkling with water, and the officials supervising the work doubtless are still wondering why it was that the water put the fire out. A closer study might have shown that the steam generated when the water was thrown on the fire, as well as the carbon dioxide formed, were the deciding factors.

FIRE IS RARELY SUPPRESSED BY SPRINKLING

In most instances where sprinkling is employed fire will continue to gain in violence and make its appearance in many places throughout the affected district until conditions are so alarming that the mine has to be abandoned. This abandonment means the stopping of the fan, but the natural ventilation, probably augmented by the heat from the heated zone, will still continue to carry a current of air through the mine to the vicinity of the fire.

Then the only plan available is to seal off the mine at the main intake and to return and await developments. This is naturally a serious and anxious time since all conditions and factors present favor the occurrence of a destructive explosion, which may result in loss of life even of those working on the surface around the mine mouth.

It is the part of wisdom, therefore, to control conditions as soon as the first smoke makes its appearance. Even then danger is present, and a radical decision should be taken without hesitation, and the mine sealed off as tight as possible at the main intake and return. The purpose of this measure is the total exclusion of air, not only in the fire district but in the whole mine, and its replacement by gases, explosive or otherwise, the mixture of which will after a short time become inexplorable because of the lack of oxygen.

As an illustration of how a mine atmosphere degenerates after being sealed an analysis of gas may

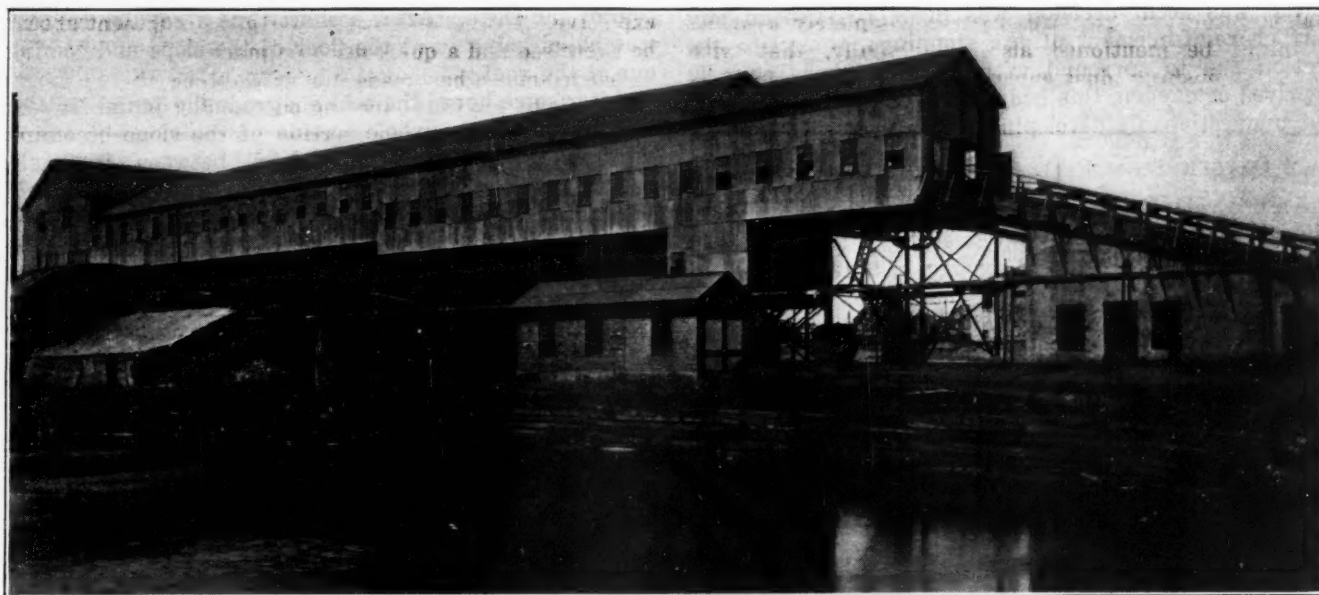


FIG. 2. GENERAL VIEW OF THE BANKHEAD OF THE ALBION COLLIERY

This mine, which has been in operation for nearly forty years, has been the scene of many dangerous fires underground arising from spontaneous combustion. Only by sealing off old workings with unusual completeness can assurance be felt that a fire will not occur in the crushed pillars.

be given which was taken from the slope mouth of one of the mines of the Acadia Coal Co. a few days after it had been sealed. This analysis was as follows: Carbon dioxide, 7.2 per cent; oxygen, 3.1 per cent; marsh gas (CH_4) 31.4 per cent; nitrogen, 58.4 per cent. No carbon monoxide was found. A few days later the content of oxygen had fallen to 0.86 per cent and a little later still to 0.42 per cent.

The operation here referred to is the Albion Mine, which ever since its opening, away back in 1881, has been frequently afflicted with serious fires, almost all having arisen from one of the causes mentioned above.

PILLARS OR CONCRETE STOPPINGS LEAKED

The analyses just given were taken at a fire that occurred in 1917-1918. An old abandoned section of the Third Seam had been entirely isolated by a line of substantial concrete stoppings. Unfortunately, because of a special disposition of the ventilating current, these were subjected to a heavy water gage, and if it had not

been for these stoppings the ventilation would have been short-circuited in large volume through the old section.

Workings in an underlying bed had disturbed the stoppings in question and at almost every one of them an odor of distilling coal was perceived. This showed conclusively that most of the coal face in the section was affected by the heat arising from the oxidation of the coal. The air was penetrating the stoppings and even the coal itself.

Naturally the first step taken was to reinforce all the concrete stoppings, and later to further strengthen and tighten the weaker ones. The odor of distillation would disappear for a few days, or even weeks, and then suddenly reappear at some other point. Finally, after about eight weeks of special watching without result, a slight cloud of smoke made its appearance at one of the bottom stoppings which was in process of reinforcement.

The section affected had an area of 1,410,000 sq.ft., and much crushed coal had been left in it. The moment



FIG. 3.

Albion Helmet Crew

Information secured by these men in one day as to the lack of oxygen near the fire and the failure of the air to mix with the methane and form an explosive mixture well repaid the company for their organization and training.

smoke was seen, decision was made to suspend any further reinforcement of the stoppings, to isolate the section and to surround with an atmosphere entirely deprived of oxygen, this body of smoldering coal, slowly but unquestionably developing into a fire.

OXYGEN SOON FELL BELOW ONE PER CENT

An analysis of the mine atmosphere already has been given, and it is now only necessary to state that after a short time the content of oxygen in the mine became less than one per cent, that of marsh gas amounted to about 36 per cent and that of carbon dioxide rose to between 7 and 8 per cent. Such a mixture made the extension or even the existence of fire impossible.

But this mixture, efficient as it was to smother a fire and prevent its extension, could not neutralize or overcome the heat that had been generated by the first stage of the oxidation of the coal. The extent and importance of this heat was not and could not be known, as, for reasons already explained, at the first appearance of light smoke it had been decided to seal off the mine.

It was considered, however, that the fire zone was of small extent, and after the reinforcement of the stoppings warmth could be located at but one point and that was near the stopping where smoke had been observed. Basing a decision on similar experiences in the past, it was decided that, the mine having been closed for over thirty-six days, the temperature of any heated point had been brought down to the natural temperature of the strata surrounding the mine and the whole atmosphere in it. Apparently, however, the area of the zone that had been affected by the heat was far greater than had been estimated. That this was so may be judged from what follows.

First, however, let a few words be said by the way of introduction. During the past six years conditions in the Pictou County coal fields have five times necessitated the reopening of mines that had been abandoned, either on account of fires which got beyond control or because of explosions and the fires that followed them.

When re-entering mine workings under such conditions the Acadia Coal Co. has never made use of a fan. Each mine has had several outlets, all of which have been sealed up as tightly as possible, with the exception of the one by which the management purposed to re-enter the mine. A current of air or gas is certain to be set up in the burning mine regardless of the fact that there is but one opening. The slightest leakage in the stoppings in the return airway if the intake be open, or in the intake if the return is open, will cause the cold and therefore heavy atmospheric air to drive off the light warm gas inclosed within the mine.

NATURAL VENTILATION OCCURS IN ANY EVENT

Even in the event that all the openings could be kept theoretically tight, with the exception of the one through which re-entry is to be made, a current will be set up. The cold air will travel down along the floor of the slope, displacing the warmer gas, which will escape by following the roof.

During the re-opening operation, which is now to be described, we made an experiment. We reinforced all the surface stoppings, covering them with sand and clay, and we even covered part of the surface with the same material. Then we opened the main return-air slope lying alongside of the main airshaft.

The first effect of this procedure was the emission of a large quantity of gas which flowed out of the full sec-

tion of the slope. After a short time a regular current was noted going in at the floor of the slope and coming out at the roof.

After some hours the cold air gradually found its way into the mine, the whole section of the slope becoming an intake. A connection existed between the main return-air slope and the airshaft. A wood stopping was built below this point for the purpose of stopping the movement of the air. It had the effect of reducing the amount of fresh air coming down, but did not entirely stop it.

In order to still further counteract this tendency, an opening with a cross section of 16 sq.ft. was made in the fan shaft with the expectation that the air instead of keeping on toward the mine would return up this shaft. Of a total quantity of 8,400 cu.ft. of air, the major portion went on into the mine, and men without apparatus could reach the stoppings that had been built in the main return slope.

Finally, in a last effort to prevent the air from going down, the fan was started at 14 r.p.m. in order to draw the air up the fan shaft. Of a total quantity of 5,148 cu.ft. of air at the slope mouth, 4,500 cu.ft. was found to be passing a point 25 ft. below the cross-cut between the main slope and the main airshaft. All this air was entering the mine.

This experiment shows the effect of natural ventilation in pitching beds. At first sight it would be evident that a state of equilibrium does not exist when light warm gases and cold heavy air are placed in contact. The quantities involved being large, with considerable difference in temperature and density, a heavy exchange current or natural ventilation is certain to be set up and this will persist for a long time.

HAVE TO CONSIDER NATURAL VENTILATION

Consequently, when reopening mines the question of natural ventilation must be given serious consideration, especially in those cases where it is important that fresh air shall not gain access to places where fire may exist, because under such circumstances the fires will be apt to restart immediately. In such cases it is highly important to direct the natural current by short-circuit or new circuit away from any point where the oxygen in the air could and would cause damage.

At the time of re-entering the Albion Mine in January, 1918, the first inrush of air, arising entirely from natural ventilation, amounted to 50,000 cu.ft. per minute. Both fans were then standing idle and every opening was closed except the main slope, through which re-entry was made. There were also a few boards taken off the fan shaft.

In order to prevent this flow passing anywhere near the heated or burning area all fresh air had, by short-circuiting the main intake to the main return, to be deflected before it came near the fire zone. In this instance this had already been done when closing down the slope at the time of abandoning the mine. The short-circuit of the air current was established at a distance of 1,300 ft. from the fire. A short distance below this point a blanket of gas existed through which no one could pass without the aid of breathing apparatus.

The mine was then allowed for three or four hours to clear itself of the great bulk of the gas which lay on the circuit just established which, as has been stated, was at every point at least 1,300 ft. above the fire zone. The ventilation being much reduced because of the

cooling effect of the circuit, and also because of the dilution of the gas in the return, the short-circuit at this point was shut off and another short circuit established farther down, only 460 ft. from the fire.

The men, following the air circuit, reached a point where light smoke had been seen before the mine was sealed up. Here a strong odor of distillation was detected, and soon afterward this was followed by the smell of coal smoke. This discovery was most disappointing, because it left no doubt that the smoldering gob fire which had been surrounded by an atmosphere, carrying for thirty-six days less than one per cent of oxygen, had not been extinguished. A few hours later smoke again made its appearance, and for the same reason as before it was decided to close the mine and let it again fill with inert gas.

HAD TO GIVE FIRE MORE TIME TO DIE OUT

The mine had been opened for only eighteen hours, and all the different phases of re-entry had been carried out as scheduled. This attempt was somewhat disappointing, since it followed four other successful re-openings carried on in exactly the same manner. In each of these cases one month of sealing had been considered sufficient not only to extinguish the fire but also to cool down the surrounding coal and strata. In some cases less than one month had sufficed for this purpose.

Finally, after considering every contingency, such as the possibility of the section being connected with workings of some other bed, through subsidence which might have taken place between this seam and that underlying it, it was decided to proceed according to the same method as had been previously adopted but to keep a close control of the natural ventilation. Since the first attempt had shown that thirty-six days was not sufficient to cool down the fire zone, the new entry was made almost three months after the first one, and contrary to what had been done in that case the second attempt was made in several stages.

The first of these included the establishment of a ventilation circuit as far as No. 4 level, 1,900 ft., and from there upward toward the surface in a separate ventilation slope, the idea being to keep the air current as far as possible from the fire zone. Instead of starting with a large amount of air, the current given by the natural ventilation at the start was only 10,000 cu.ft. per minute. This was ultimately increased to 21,000 cu.ft. The composition of the mine atmosphere at the time of the start was: Carbon dioxide, 9.98 per cent; carbon monoxide, 0.89 per cent; oxygen, 1 per cent; methane, 42.6 per cent; nitrogen, 45.9 per cent. This atmosphere was highly favorable to fire extinction.

OPEN DOOR TO KEEP AIR FROM FIRE ZONE

The program of the first day included the opening of a door on No. 5 level, 260 ft. from the seat of the fire. This door, having been previously left closed by mistake, allowed any ventilation passing below No. 4 level to reach the fire zone. In order to avoid sending the ventilation beyond No. 4 level, for we had determined to keep this part of the mine under gas, the door in question had to be opened by men in artificial breathing apparatus. The distance down the slope from the air station to the door was 940 ft. The men went down as far as the door, but found that a fall which had taken place prevented its being opened.

At this stage a sample of gas taken from the slope at No. 5 level, 2,800 ft. from the portal, showed 17 per cent of oxygen. The mine having been opened for

almost ten hours, dilution of the gas by the air current was taking place. It was decided to end here this first stage of the operation and to let the mine fill up again with gas for a few days. This was done and after a short time a gas sample taken through the pipe at the slope mouth gave this analysis: Carbon dioxide, 10.9 per cent; carbon monoxide, 0.42 per cent; oxygen, 0.62 per cent; methane, 30 per cent; nitrogen, 59 per cent.

A few days later we proceeded with the second stage of the program. This consisted in leveling off the fall which prevented the opening of the door at No. 5 level, also the closing by temporary wood partition of a small ventilation head next to the fire stopping. Natural ventilation was then established, 20,000 cu.ft. of fresh air per minute being admitted through the slope, but only down as far as No. 4 level. From this point the work which had been planned was accomplished by helmet men in an atmosphere containing only a small percentage of oxygen. These men worked 940 ft. from No. 4 level, which was the air station. This was practically all that was done the first day, at the end of which the helmet men had levelled off the fall, opened the door referred to and closed up the ventilation head. After the mine had been opened for nearly twelve hours they took a sample of the gas almost against the fire stopping. This sample, being analyzed, much reassured us, because it was found to include carbon dioxide, 5½ per cent; oxygen, 10 per cent, and methane, 24.5 per cent.

FRESH AIR DID NOT MIX WITH METHANE

The value of this information alone would fully justify the organization and training of a corps of apparatus men. This valuable information meant that all our previous work had been successful in keeping an explosive mixture away from the fire zone. Also that it was possible to work with restricted ventilation in close vicinity to the fire stopping for about twelve hours without permitting a mixing of air and methane such as would constitute an explosive mixture.

At this stage it would have been quite possible to complete the program which included the building of a temporary stopping outside the one where on two different occasions we had noted smoke, but before proceeding to this last measure the whole mine was once more allowed to fill up with gas. Finally the last re-entry was made. Through the same procedure as before the air was permitted to enter the mine, and this time allowed to pass to No. 4 level, traveling down toward No. 5. Men without breathing apparatus, following the air, built the temporary stopping above mentioned. The old stopping and all its surroundings were found to be perfectly cool, giving no indication of heat and no odor of distillation. The building of the temporary stopping was rapidly completed and immediately afterward the permanent concrete stopping was started. Success had been secured and once more the mine officials felt that their confidence in this system of smothering a fire was well justified.

SEAL OFF GOB WITH A WATER SEAL

In order to remedy the real cause for the fire, namely, infiltration of air through the coal in which the stoppings are set which seal off the lower portion of the section, a system of pipes connected to a natural water supply keeps a head of a few of water all over the bottom portion of the section. The overflow taking place through the coal is the best proof that the air cannot again enter to feed the gob with oxygen.

How to Secure Life and Duty from Frame and Mechanism of Mine Locomotives

Proper Care and Maintenance Greatly Reduce Operating Costs and Increase the Life of Locomotives—Details of Operation and Inspection Are Highly Important in Securing Maximum Life and Satisfactory Service

BY W. T. CLARK*

MINE operators who have electric locomotives in service for any length of time soon learn that proper care and maintenance will greatly reduce the cost of operation as well as the loss in production which is suffered whenever locomotives are out of service. As there are a large number of types and makes, the suggestions here set forth may not apply to all, but they will be found applicable to most mine locomotives.

It is advisable to give the locomotive a thorough inspection once a week and supplement this with a daily inspection of those parts which need most frequent attention, such as the brakes, journal boxes, trolley poles, controllers and reels, if these latter devices are employed. It has been found desirable at a number of mines to appoint a regular oiler, whose duty it is to see that all parts of the locomotive are properly lubricated. It is better to make this the specific task of some one man than to leave it to the motorman. Such a definite assignment of duty results in a considerable saving in oil and lessens the likelihood that the insulation will be injured.

LOCOMOTIVE FRAME MUST BE KEPT IN REPAIR

Except in a wreck locomotive frames require little attention. The frame joints should be kept tight. Bolts finished all over should be used in reamed holes and the nuts should be kept tight. Any crack in the frame caused by a wreck should be repaired immediately. A crack if not repaired is apt to enlarge and allow movement of the frame, which will cause more rapid wear on other parts of the locomotive, such as wheel flanges, journal boxes and axles. If a crack caused by a wreck is large it is usually better to procure a new frame. If the frame is made of cast iron it can be repaired by using steel plates machine-bolted, cap-screwed or patch-bolted in place. If the frame is of cast steel, it is advisable to weld any crack that may develop, care being taken to clean it thoroughly before welding and to see that the frame is not distorted in the welding.

If cast-iron wheels are used they should be replaced by new ones as soon as the chill is worn through at any point, as a wheel in this condition causes damage to

tracks, switches and curves. If steel tires or rolled-steel wheels are employed, they should be trued up in a lathe when the tread becomes worn flat or grooved, as otherwise they will damage the track. By careful electric welding flat spots or grooves can often be filled in without removing the wheels from the locomotive.

On machines where the end-thrust of the axle is taken between the wheel-hub and the journal-box, the wear at this point should be carefully watched. If the wheel-hub is badly worn at the time the tire is changed, a new center should be used or the hub of the old center built up by applying a steel-plate washer so as to reduce the lost motion to one-sixteenth of an inch. If the journal-box is badly

worn it should be replaced at the same time. If the journal-box is not worn too thin for safety, it may be shimmed.

TO SAVE WEAR KEEP WHEELS OF EQUAL RADIUS

The life of wheels will depend on the character of the track, method of operation, manner of braking and quantity of sand used. The wheels on any axle should always be kept of equal diameter, for the cone effect of unequal wheels will cause rapid wear of the flanges and the track. If the wheels on the two driving axles are not of the same diameter the load will be divided unequally between the motors, the motor driving the larger pair doing more than its share of the work. It may happen that the service is such that sand is used principally in one direction of travel. In this case the leading wheels in that direction of operation will wear more rapidly and it is advisable to change the axles after each wheel turning so as to make the leading drivers of a slightly larger diameter.

The axle diameter should be measured occasionally, as the axle may become worn in the bearing as a result of improper lubrication or worn brasses. The bearings should be kept smooth and the axle replaced before it gets so worn as to present danger of bending or breaking.

WHAT TO WATCH IN LUBRICATION OF BEARINGS

Journal boxes usually are designed for oil and waste lubrication. High-grade wool waste should be exclusively employed for packing, as cheaper grades do not

As a locomotive has no bedplate, the frame must perform the function that usually falls to that highly important part of any mechanism. For this reason its cracks must be mended and its joints kept tight. To avoid any coning effect and to divide equally the tractive effort between wheels, the drivers must be kept equal in diameter. Pinions and gears should be kept tight on the axles and the motor suspension should be carefully watched, lest the motor fall on the track.

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possess the proper resilience and consequently do not keep in close contact with the bearing surface. Furthermore the capillary action is not as pronounced in the poorer grades and they will not carry as much oil to the bearing. Before packing the box the waste should be soaked in oil for twenty-four hours. Care should be taken not to use too much waste and not to pack it too tight in the box.

The journal boxes should be examined daily to see that the waste bears against the axle and that it is not dirty or glazed. Dirty or glazed waste will not carry

operator of the locomotive, its brakeman and frequently that of the miner depends on their reliability. The brakes should be examined each morning to see that they are in condition for the day's run and that they are properly aligned with the wheel tread. On the screw-type brake the slack at the dead lever should be taken up so that when the brakes are set the brake shaft will project at least an inch beyond the nut in the brake. When a turnbuckle is employed between levers, daily adjustments may be made thereon without adjusting the dead lever for some time.

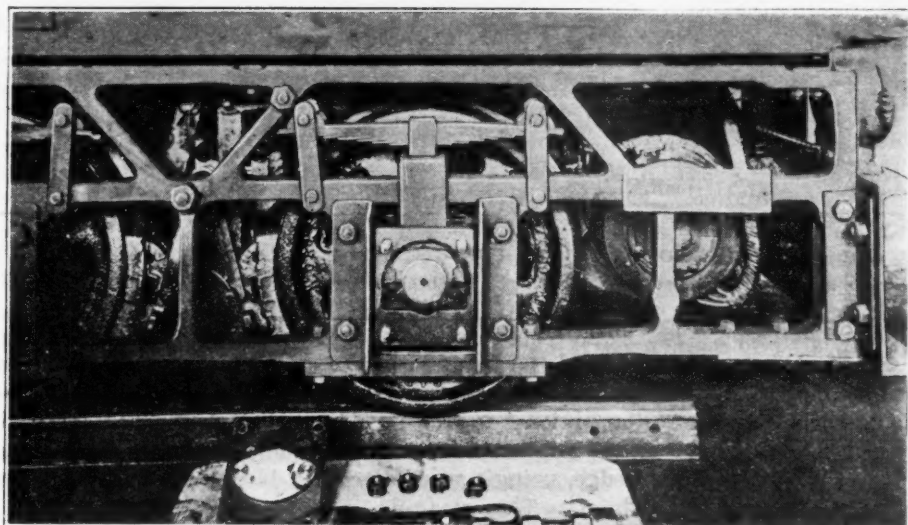


FIG. 1

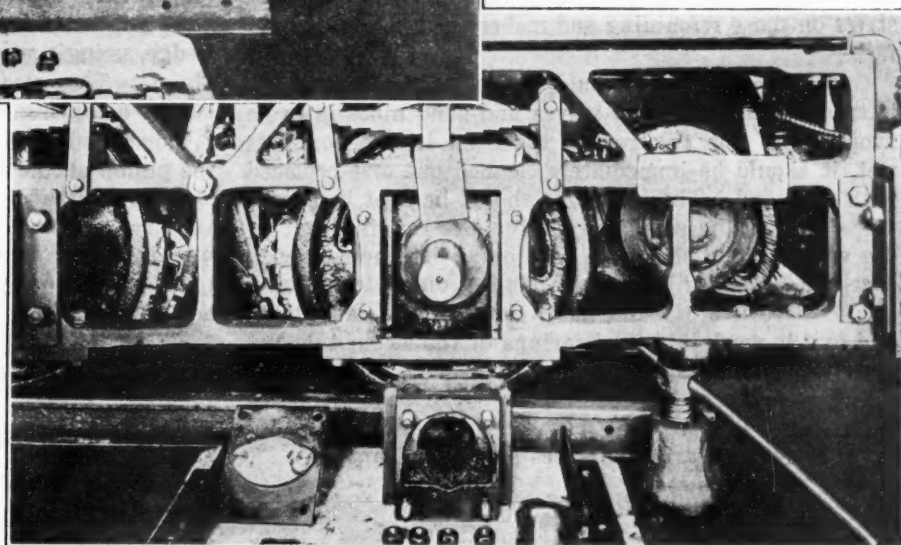
Journal Box Cover Removed

This cover takes the end thrust of the axle directly and so relieves the inner end of the journal box from stress and wear. This convenience is rendered possible by the use of the outside frame.

FIG. 2

Journal Box Entirely Removed

Removal of the box is easy, and when that is done an inspection or a renewal of the packing or of a worn brass can be made without inconvenience or prolonged delay.



the oil to the rubbing surfaces. The journal brasses should be replaced before they wear thin enough to split. No definite rule can be given for oiling journal boxes because of the large variety of types and capacities of oil cellars and the variation in service conditions.

Sufficient oil should be employed to give proper lubrication, but the use of more oil than necessary is wasteful. Where the thrust of the axle is taken between the wheel hubs and journal boxes, these bearing surfaces should be oiled occasionally to reduce the wear. It is also advisable to oil between the box and the pedestal gibs.

On locomotives with the frame outside the wheel the journal boxes are more accessible for inspection and oiling. Furthermore outside frames permit the use of a type of box in which the thrust is taken between the end of the axle and the journal box lid instead of between wheel hub and end of box. This greatly increases the life of both the wheel hub and journal box. (See Figs. 1 and 2).

One of the most important details of operation is the daily inspection of the brakes, as the safety of the

Threads on the shaft and nut should be examined to determine whether they are worn and in danger of stripping. Pins and levers should be kept free from mud, which may clog the action of the brake sufficiently to cause uneven wear on the brake shoes. When the brake shoes become worn and require renewal it is preferable to replace all the shoes at once. In case one or two are much more worn than the others, the shoes should be replaced in pairs—that is, the new shoes should be put on one pair of wheels and the partly worn ones on the other. If the shoes on a pair of wheels are not worn evenly the brake will not operate properly.

When operating a brake pressure should be applied according to the locomotive speed—high speed requiring heavy pressure. The pressure should be reduced as the locomotive slows down. Otherwise the brake will lock the wheels, causing them to skid. Skidding reduces the braking effect and also wears flat spots on the treads. Sand increases the braking effect, but if the wheels lock and skid, it causes much more rapid wear.

The springs of the journal boxes are designed to protect the equipment from shock and afford comfort



FIG. 3. A HEAVY SIX-DRIVER TROLLEY LOCOMOTIVE FOR USE WHERE HEADWAY IS LOW
The spring arrangement is such as to put equal pressure upon all wheels. A broken spring destroys this balance.

to the operator. A broken spring should be replaced immediately, as a locomotive thus crippled will not ride smoothly and has a greater tendency to jump the track. Furthermore the breakage of one spring throws greater stress on those remaining and makes them more likely to fail.

Only clean, dry sand should be used in the sand boxes, if trouble from clogging valves and sand pipes is to be avoided. If for any reason the sand in the box gets wet, it should be immediately cleaned out and replaced with dry sand. The sand pipe should be kept in proper place so that the sand will fall on the rail in front of the wheel. Sand should be used only when necessary to accelerate a heavy load or in hauling on a steep grade.

Excessive use of sand has a tendency to cause dust and grit to work into the bearings of the locomotive and motors, causing rapid wear. Care should be taken in filling sand boxes to avoid spilling the sand over the journal boxes, gear cases, motors, etc., as sand so spilled may reach the bearing surfaces and cause damage.

SAND SHOULD BE CLEAN AND IN PLACE

One-half of the gear case should be removed at frequent intervals and the gear and pinion inspected. It will depend on the locomotive construction and on the conditions in the mine as to whether it is better to remove the upper or the lower half of the case. If the pinion is worn unevenly it is a sign that the axle caps need tightening or that the axle bearings need renewal.

REPLACE PINIONS BY BOILING WATER METHOD

Pinions should be replaced as soon as they become badly worn, as in this condition they cause increased wear on the gears and are likely to strip. The best method of obtaining a tight fit of the pinion is to use the hot-water method in its application. The following precautions should be taken, whether the pinion is to be driven to place or applied by the hot-water method.

Both shaft and pinion bore should be cleaned and freed from burrs or swelling. The pinion bore should be in contact with at least three-fourths of the surface of the shaft and should fit properly over the key. The hot-water method consists of heating the pinion in boiling water for from thirty to sixty minutes, depend-

ing on the bore of the pinion. When the pinion has reached the temperature of the boiling water, it should be removed and the bore quickly wiped clean. Before the pinion has had time to cool it should be tapped to place with a heavy copper hammer or with a 6 to 8-lb. sledge, using a wood or copper block between it and the pinion. This sledging is not resorted to in order to secure a driving fit but to make sure that the pinion is home and well seated. Three or four taps around the pinion should be sufficient. The pinion nut with its lock washer should then be screwed on tight. To prevent rusting and to assure a clean surface of contact, washing soda should be added to the heating bath—a quarter of a pound of soda to five gallons of water.

LOOSE GEAR MAY DO LOCOMOTIVE MUCH DAMAGE

Gears whether split or solid should be kept tight on the axle. Unless the gear is kept rigidly in place it will rapidly ruin the key and axle, and may break the pinion and cause further damage. In putting on a split gear care should be taken to have the key fit tight in the axle and in the sides of the gear keyway, but there should be $\frac{1}{16}$ - to $\frac{1}{8}$ -in. clearance between the top of key and bottom of gear keyway.

The sharp edges of the key should be removed with a file, so that they will not interfere with the fillet in the bottom of the keyway. If the gear is placed as tightly as possible on axle and key, and the bolts after a few days' operations are tightened a second time, little difficulty from loose gears will be experienced. However, trouble is always likely to occur from split gears. Solid gears are preferable, as they have a much longer life and do not come loose on the axle. They will outlast at least two sets of tires or rolled-steel wheels.

Gear cases should be kept supplied with a liberal amount of heavy oil or grease. Joints in such cases should be kept tight and if broken repaired immediately. It is better to run without gear cases than to operate with loose or broken ones, as the dirt which gets between the gear teeth because of loose or broken cases will cause more rapid wear than that which gets into the mesh when no cases are used. The practice of running without gear cases shortens the life of the gears, as without them gears cannot be lubricated properly.

The motor suspension should be inspected regularly.

Any failure in the suspension, which drops a motor to the track, is likely to cause a serious accident. Any broken suspension springs should be replaced at once. Such breakage usually results from an open circuit in the resistance on one or two notches, loose gears, or improper handling of the controller.

Iron Conductors for Interior Wiring*

By S. T. HARLEY
St. Louis, Mo.

GENERAL opinion appears to be that there is no probability of iron ever being considered as a material for conductors for interior wiring in the United States; at least not for some time to come. An iron conductor is difficult to solder effectively and even if protected by the best-known methods may be subject to corrosion. This would be fatal in concealed work.

Iron wire is being used to some extent in America for high-voltage transmission lines and in this service is apparently satisfactory. Where used for high-tension transmission conductors it can always be inspected readily and is invariably of such large section that failure by corrosion is not likely to occur until the conductors have been in service for a long period. If iron wires were used for inside work, in order to provide the same conductivity—that is, afford the same voltage drop—they probably would have to be at least seven times the size of the copper conductors now used.

*Copyrighted 1920.

Rosedale Mine Submits This Entry-Driving —Let Us Have Yours

AT the Cambria Steel Co.'s Rosedale Mine (Nos. 5 and 6) between Jan. 6 and June 15 two headings 7 x 10 ft. in cross section were driven an aggregate of 2,976 ft. The coal is 3 ft. thick and consequently 4 ft. of rock had to be removed. The only machinery used was a Goodman shortwall mining machine and two jackhammers. The average advance per entry per week for the 23 weeks was 64.7 ft. or 21.56 yd. From June 8 to June 15 a distance of 88 ft. was driven in one heading and 90 ft. in the other.

Mine Door Set Automatically Into Action by Weight of Trip

A Mule, Two Men, a Mine Car or a Locomotive Passing Over the Approach Platform of the Door Will Depress It and Throw the Door Open

LIKE many another mechanical device, the automatic mine door has been much criticised because of lack of simplicity and of rigid construction. An improved type of automatic mine door, recently patented by J. J. Sabin, of Coupeville, Wash., was installed during January, 1920, in the mine of the Sabin Coal Mining Co. at Herrin, Ill.

The accompanying illustrations show this device in some detail and give an idea of its rugged construction and the small amount of attention which its maintenance demands. The doors are operated by gravity. When a locomotive, mine car or other sufficiently heavy weight approaches the door the mine track is depressed. For this purpose, the track approach upon either side of the door is well floored with heavy oak planking. A mule or two men approaching the door have sufficient weight to depress the elevated track and cause the door to open.

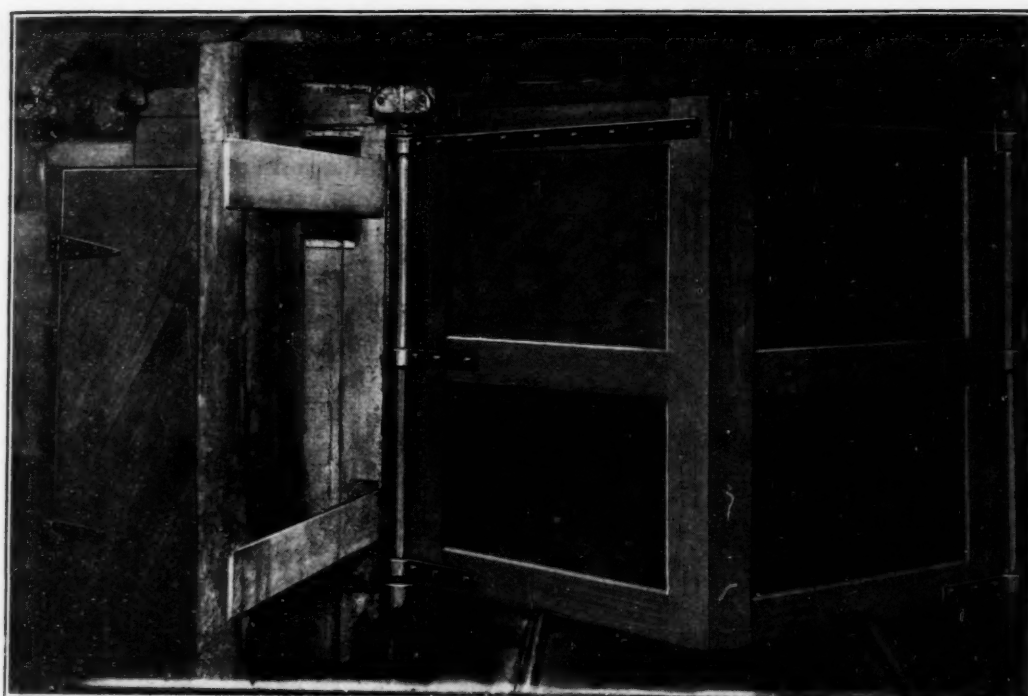
The mechanism operating this door consists of a pair of right- and left-hand spirally slotted extra-heavy pipe columns. The spirals are placed in the lower end of the uprights, and through them passes a 3-in. horizontal shaft, supporting the track. This is clearly shown in one of the cuts. To the end of this shaft is attached a 1-in. flexible wire cable which passes over a differential sheave supported by the door frame. From this sheave are suspended counterbalance weights. When the doors are closed these weights raise the tracks approximately 6 in. The rail approaches to the door are 24 ft. long on one side and 30 ft. on the other. The inclination of the track floor, therefore, is almost negligible.

When a motor or mule approaches the door the weight on the elevated track depresses the horizontal crossbar, causing the doors to open and remain in this position until the moving weight passes through and leaves the



Locomotive Opening Doors

The weight of a moving trip upon the track approach causes the doors to open. After the trip has passed, the doors close under the action of a counterweight. Any weight sufficiently heavy to raise the counterweights will open the doors.



Doors Closed

The two doors meet in a V and open outward, in this case toward the observer. An auxiliary or man door may be seen to the left of the main or trip doors. The operating mechanism is on the opposite side of the door and concealed by the jambs.

platform on the far side. When the track is depressed it rests upon a solid support. The track is thus able to carry the heaviest mine locomotive. As soon as the weight is removed from the track, the counterbalance weights lift it to its original position and close the doors.

DISPENSES WITH LEVERS AND SPRINGS

It will be clearly seen that in the throwing of these doors it is unnecessary to operate levers, springs or any other mechanical devices, and the human element is not relied upon in the least. This renders the door automatic in every sense of the word. The rails are securely held in place by the use of heavy steel ties placed about 2 ft. apart, making the track markedly rigid and safe. On top of these ties, which extend about 12 in., outside of the rail, a heavy oak floor is

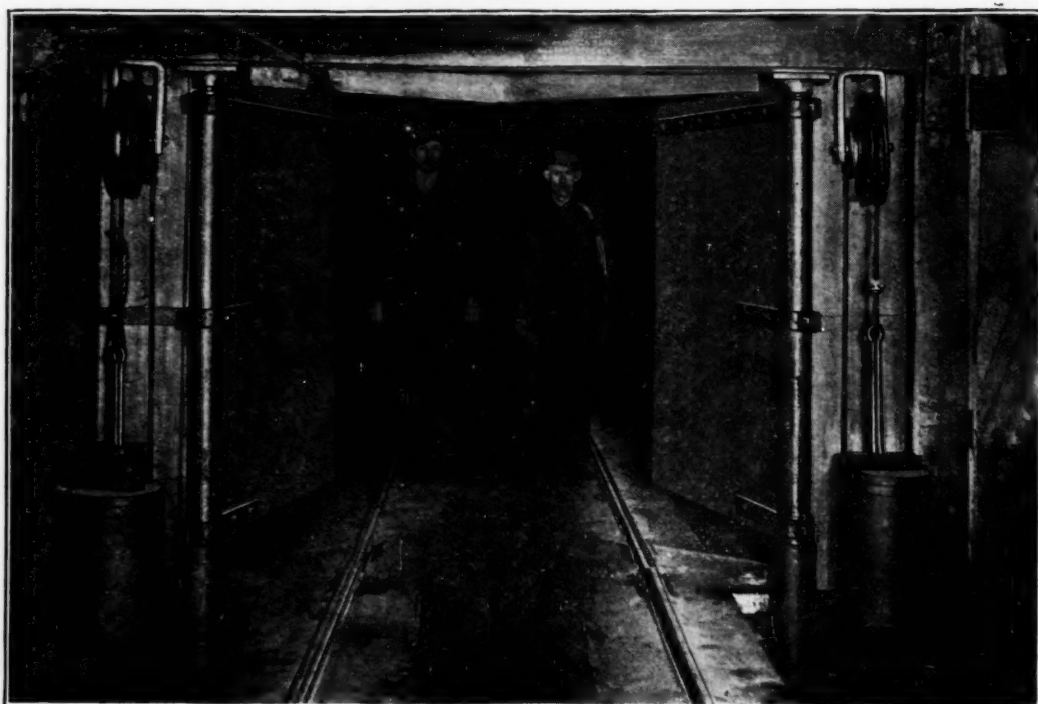
placed. Coal or other material is thus prevented from getting under the track and interfering with the proper operation of the door. A cone is placed in the lower portion of each of the spiraled columns, and this prevents coal from accumulating in them.

On account of the nice balancing of this door a locomotive at slow speed will throw it wide open by the time it has traveled a distance of 6 or 8 ft. upon the track approach. At a speed of twelve to fifteen miles per hour a locomotive has a clearance of 5 or 6 ft. on the opened door. The operation of the doors depends upon gravity only and the weight does not have to be great. Hence a mule, either drawing cars or without them, can depress the track and pass through safely.

This device, as above stated, has been patented by the inventor and is manufactured by the Egyptian Iron Works at Murphysboro, Ill.

Locomotive Not Needed

Two men are heavy enough to operate the opening mechanism at least far enough to permit their passage. A mule is sufficiently heavy to open the doors wide. This view, being taken from the rear of the door, shows the counterweights on which operation depends.

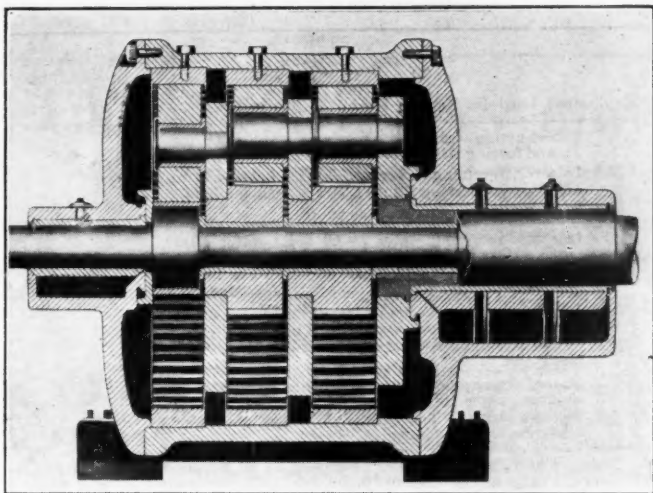


Speed-Reduction Gear Regulates Speed of Machine to Fit Need

By This Device a Motor Shaft Can Be Made to Drive Shaft of a Machine in Direct Line with It at Any Predetermined Speed Ratio

WITH equipment of various kinds in and about the mine a gear reduction is often found necessary. Such gears must often be introduced between the ventilating fan and the motor which drives it, between picking tables and their driving motors, and upon conveyors, pumps, jigs and other devices.

The means commonly employed for securing changes in rotational velocity are belts, gears—spiral, bevel and



CROSS SECTION OF THE GEAR

This particular gear is triple, that is, three distinct gears are inclosed within one case, forming one unit. This gives a high reduction between the driving and driven shafts.

herringbone—sprocket chains and more recently the silent chain drive. Where the driving and driven shaft extend at right angles to each other, either the bevel gear or the worm gear is sometimes used to good effect.

Where, however, it is advantageous to keep the driving and driven shafts in the same line, the James reducing gear offers a ready solution to the problem. This gear, as may be seen in the accompanying illustration, is much more compact than those of the ordinary type and there is the further advantage that the gear wheels accomplishing the reduction operate in a continuous bath of oil.

The driving shaft, operating at high speed, carries on the inside of the casing a pinion, about which and carried upon steel pins fastened into a disk concentric with the pinion are three idlers. These are spaced equidistantly and mesh with an internal gear as large as the diameter of the casing will permit.

The disk, which revolves under the action of the idlers, also carries a pinion which meshes with a second set of idlers, which in turn mesh with a second internal gear. This construction is carried out until the desired speed reduction is attained. The last disk of the series actuates not a pinion but the driven shaft. The whole apparatus may be seen in sections in the accompanying illustration.

It will be at once perceived that this construction, while extremely simple, may be arranged to give almost any desired speed reduction. The ratio between the speeds of the driving and driven shaft in this device as

now manufactured may be anything from 1 to 4 up to 1 to 1,600. It is, of course, seldom that this latter and extreme ratio is either necessary or desirable.

It can, nevertheless, be obtained in a device of this kind composed of only four of these concentric speed-reducing elements. It is sometimes advisable to combine this device with the ordinary worm-gear reduction. Thus a high-speed motor, say one operating at 1,800 r.p.m., could be arranged to drive a picking table where the speed of the apron is, say, 50 ft. per min. and the speed of the driving sprocket is roughly 4 r.p.m.

The compact size of this gear reduction renders it advantageous for application upon the same bedplate as the motor. It seldom exceeds in bulk the machine to which it is attached, and the use of an extended bedplate facilitates the operation of both machines while adding rigidity to the base.

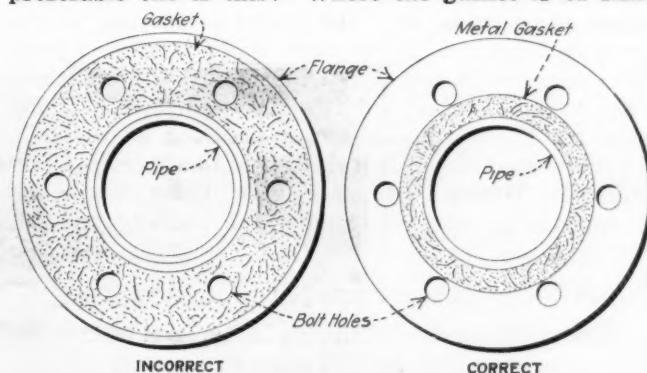
This gear reduction has thus far been but seldom applied to the machinery in use in the coal-mining industry. The device has, however, been given a thorough tryout in other industries where reliability is highly important, and it has proved entirely successful. There appears, therefore, to be no good reason why it should not attain equal results in the coal industry, where a compact, comparatively fool-proof, reliable gear reduction of large ratio is desirable. The speed-reduction gear here described is manufactured by the D. O. James Mfg. Co., of 1120 W. Monroe St., Chicago, Ill.

Metal Gaskets Should Not Be So Large As [To Extend to the Flange Bolts*

By T. R. MORRIS
St. Louis, Mo.

WHERE a metal gasket is used in the flange joint between two pipe lengths it should be of relatively small diameter and placed within the bolts as shown in the accompanying illustration at the right. At the left is shown the incorrect method.

The reason that the practice suggested at right is the preferable one is this: Where the gasket is of small



THE TWO TYPES OF GASKETS

area the unit pressure—that is, the number of pounds per square inch—imposed on it when the bolts are tightened is much greater than if it has a large area. Thus a gasket of small diameter is “squeezed” tighter in the joint, with the same pressure on the bolts, than a gasket of large diameter.

Where rubber or some similar yielding material is used for the gasket it may be made as shown at left. The bolts hold the gasket in place and the unit pressure imposed on it, where it is of one of the softer materials, is sufficient to insure a tight joint.

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Why Boiler-Feed Pump Gives Better Service Than an Injector*

Injectors Are Perfect Devices as far as Using the Heat in Steam Is Concerned, But They Cannot Handle Hot Water

BY T. H. GREEN
St. Louis, Mo.

WHEN an injector is used as a pump for raising and forcing water, and only as a pump, it is highly inefficient inasmuch as it requires about five times as much steam—or coal—as an ordinary single or duplex steam pump would employ to do the same work. Hence as a device for merely lifting or moving water the injector, from an economic standpoint, is entirely out of the running.

But it is a fact that the injector imparts to the water which it pumps all of the heat of the steam which it uses in pumping water. In the foregoing statement the minor, almost inappreciable, radiation losses that actually and unavoidably occur are disregarded. Hence from a thermal standpoint the injector is 100-per cent efficient. But the heat which it imparts to its feed water is heat from live steam, and only water that originally is relatively cold can be injected, whereas with the pumps of other types used for boiler feeding the feed water itself may be hot, having been heated previously by exhaust steam.

INJECTOR HAS MANY LIMITATIONS

The injector cannot, in practice, handle effectively water at temperatures exceeding about 100 deg. F. This means that it cannot be used advantageously upon water that has been previously heated in a feed-water heater. Consequently this device cannot be employed at all with an open feed-water heater. It may be used, however, with a closed heater installed between the injector and the boiler.

An injector will not start when served by a steam pressure much lower than that for which it was designed. Assuming that the device is started on the pressure for which it was built, if the impressed pressure increases or decreases materially the injector will cease to work. Nor will it start again automatically upon resumption of the steam pressure at which it originally started and for which it has been temporarily adjusted. To cause it to start again to pump water, the operator must manipulate anew the starting and adjusting levers.

ABANDON INJECTOR AND SAVE EXHAUST HEAT

Furthermore, material change in the level of the suction water being handled will cause the injector to cease operation. This necessitates a new adjustment and a new start. In many instances when an injector has been working and has become hot, if for any reason it stops or is stopped, it cannot be re-started until it has been duly cooled by sousing it with cold water. Obviously all of the above disadvantages restrict the desirable application of the injector for boiler-feed service. On the other hand, the simplicity, small space occupied, absence of moving parts and low first cost of the injector render its use desirable under certain conditions.

The injector is uneconomical in an application where an exhaust-steam feed-water heater can be employed. This is a general statement. Hence injectors are ordinarily provided only on locomotives and traction engines and upon small portable boiler-engine units where the use of a feed pump and feed-water heater might not be desirable or feasible. It makes an excellent standby, however, even on large stationary boilers, to be used only in time of emergency such as the failure of the regular boiler-feeding equipment.

The injector is just about as economical from a coal-consumption standpoint as an ordinary steam pump that feeds cold water to the boiler. The following table discloses at a glance the economies of the situation.

RELATIVE ECONOMIES OF THE INJECTOR AND OF BOILER-FEED PUMPS OF DIFFERENT TYPES
(Re-arranged from data by D. C. Jacobus)

Equipment Used for Forcing Feed Water Into Boiler	Relative Coal Consumption	Relative Saving in Coal (Per cent)
No Feed-Water Heater		
Direct-acting steam pump receiving water at 60 deg. F. and forcing it into boiler at 60 deg.	1.000	0.0
Injector, receiving water at 60 deg., heating it to 150 deg. and forcing it into boiler at that temperature	0.985	1.5
With Feed-Water Heater (which utilizes exhaust steam from engine)		
Injector, receiving water at 60 deg.; water after passing through injector is heated from 150 deg. to 200 deg. in feed-water heater before being forced into boiler	0.938	6.2
Direct-acting steam pump receiving water at 60 deg., which, after passing through pump, is heated to 200 deg. in feed-water heater before being forced into boiler	0.879	12.1
Geared power pump mechanically driven by engine, receives water at 60 deg., which, after passing through pump, is heated to 200 deg. in feed-water heater before being forced into boiler	0.868	13.2

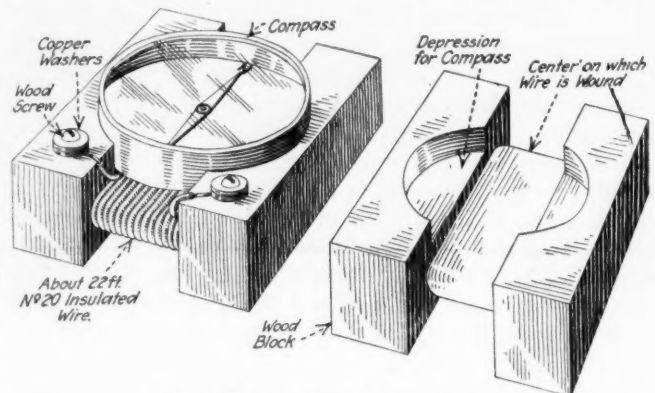
Note—Water fed into boiler operating at 80 lb. per square inch gage pressure. Pump has a duty of 10,000,000 ft.-lb. per pound of coal when no heater is used.

Converting a Magnetic Compass Into an Efficient Galvanometer*

BY R. W. CRAWFORD
St. Louis, Mo.

A NEAT and effective galvanometer that may be used in many interesting electrical experiments can be assembled as suggested in Fig. 1. To make this galvanometer there are required: (1) A good pocket compass, (2) a block of white pine or other soft wood, (3) about 22 ft. of No. 20 copper wire, either cotton or silk insulated, (4) four copper washers, and (5) two round-head wood screws.

The wooden block is cut to the form shown in Fig. 2,



DETAILS OF GALVANOMETER

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making a bobbin on which the wire may be coiled and providing a depression such as will just contain the pocket compass. Next the insulated wire is wound on the center or bobbin as shown in Fig. 1. Each of the ends of the wire is brought out to a binding post made with a round-head wood screw and two copper washers. In using this galvanometer it must always be placed (Fig. 1) in such a position that when no current is flowing through the coil the compass needle will rest exactly parallel with the turns of wire on the core.

It should be noted that in a device of this kind satisfactory results are seldom obtainable with a cheap compass. To be reasonably accurate and sensitive the compass should be of relatively large diameter, the needle should be strongly magnetized and should be supported on a good jeweled pivot. It is probably impossible to buy a compass of much value for this work for less than a dollar.

As already mentioned in this article, bins, in order to dry the coal properly, should be equipped for unloading from the top down. Such an equipment costs more than do driers, and if ground space is at a premium the comparison in savings effected is even more in favor of the centrifugal machine. The use of driers also reduces the important item of settling tanks to a minimum, as all the fines and sludge are taken care of from the outset.

Experiments conducted on the first type of drier that I designed taught me that the use of scrapers would increase the settling area needed to such proportions that economical operation would be almost impossible. Furthermore, the reduced efficiency of the imperfectly dried coal and the loss of fine coal, with the lack of uniformity in the moisture of the dried product, so added to the expense of conducting draining bins that they made the need for a better type of drier a real necessity.

Carbon Blisters and Carbon Threads Are Said To Be Evidence of Good Coke

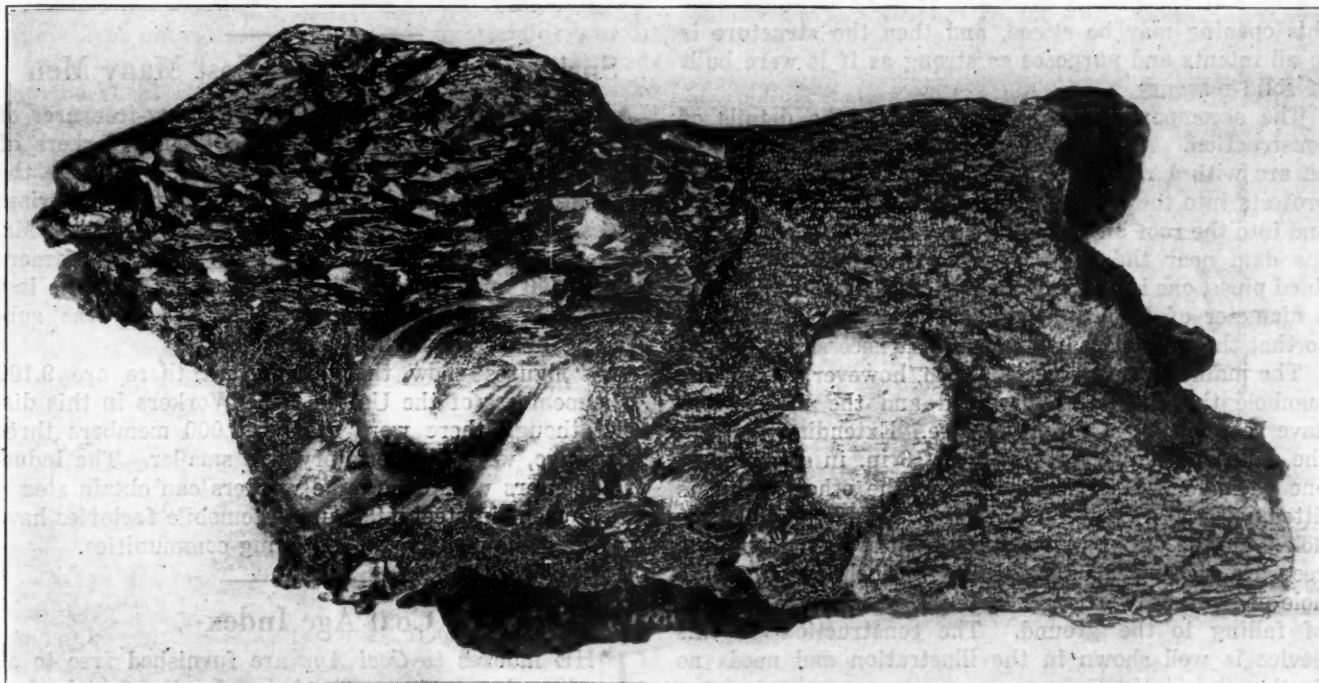
Undecomposed Hydrocarbons at the Bottom of the Oven Rise Into the Fierce Glow of the Upper Part of the Charge, Where They Split, Leaving Pure Carbon on the Coke Faces

COKE frequently has "metallic silvery" carbon deposits either in the form of solid blisters or hair-like threads. These deposits are found quite often in the beehive product and not infrequently in coke made in the byproduct oven, and they are usually taken as evidence that the coke is good and well-burned.

These deposits of excess carbon are in beehive ovens usually found near the top of the coke layer close to the oven walls or anywhere adjacent to the well-defined gas channels or fissures which develop in the charge

during the carbonization period. Rarely, if ever, is this characteristic found in the lower portion of the coke mass, that is in the so-called "black-butts" section.

Since the carbonization process in the beehive oven proceeds from the top downward through the coal charge the temperature of the top layers is considerably higher than that of the lower layers. Accordingly, in the lower portion there is, especially in the early stages of coking, a copious evolution of undecomposed coal hydrocarbons which, ascending through the avail-



METALLIC BLISTERS OF CARBON AND THREADS, SOMETIMES DULL AND THIN, SOMETIMES LUSTROUS AND THICK, OFTEN OCCUR ON COKE

Coarse threads can be seen on the upper left-hand part of the coke mass and blisters in many places. Probably there is some fine hair but the illustration fails to reveal it

able openings and fissures, are deposited upon the upper layers and are there decomposed by coming in a reducing atmosphere into the reflected heat from the oven dome and into the radiated heat from the surrounding incandescent sections of coked coal.

Undoubtedly other factors affect the formation of bright carbon spots, such as the percentage of volatile matter in the coal, the richness of its tar and aromatic hydrocarbons, the uniformity of temperatures and the general coking conditions. The time of the coking period also has to be taken into account, as it is reasonable to assume that more solidified carbon hairs would be found in a 96-hour charge than in a charge of either 72 or 48 hours' duration.

Upon analysis these silvery carbon sections show a higher percentage of fixed carbon than the regular product. It might be surmised that as the carbon in this form is extremely hard, investigation would prove it to be of a polymerized nature.

Coke having carbon blisters and hairs of the kind so plainly shown in the illustration when in the upper regions of a blast furnace will resist dissolution in the ascending hot gases and retard wind penetration in the coke burden near the tuyeres.

If a Mine Dam Gather Refuse Behind It, How Can It Be Cleared?

Such a Dam Can Be Safely Built with a Manhole,
Filled with a Pine Plug Removable
by Use of a Jack

By D. C. ASHMEAD
Wilkes-Barre, Pa.

IN ONE of the mines in the anthracite region of Pennsylvania a unique and highly efficient mine dam has been installed. This is so arranged that access can be had to its inner or rear face, if for any reason such access is necessary. But, although an opening to the rear of the dam is provided, it is so arranged that this opening may be closed, and then the structure is to all intents and purposes as strong as if it were built of solid masonry.

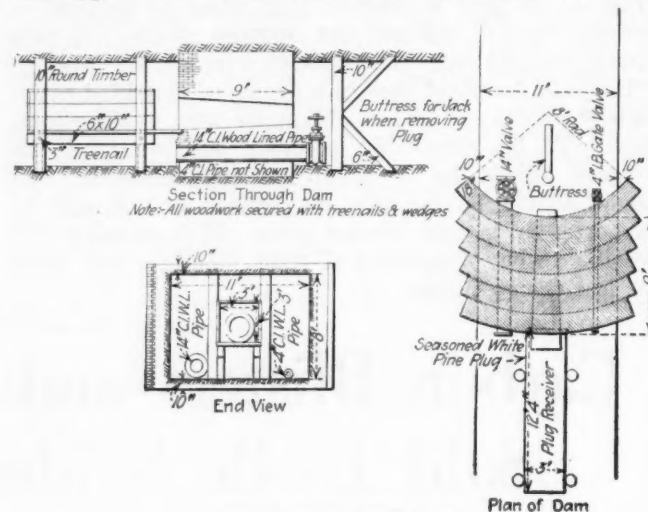
The accompanying illustration shows the details of construction. The dam is built of brick in the form of an arc with a radius of 8 ft. It is 9 ft. in thickness, projects into the wall of the heading a distance of 2 ft. and into the roof and floor a distance of 10 in. Through the dam near the bottom extend two cast-iron wood-lined pipes, one having a diameter of 14 in. and the other a diameter of 4 in. and both are equipped with valves so that the water can be drawn off if necessary.

The main advantage of this dam, however, lies in the manhole that has been provided and the means that have been employed for its closure. Extending through the dam is a round tapering hole 16 in. in diameter at one end and 25 in. in diameter at the other. This is fitted with a white-pine plug that completely fills the hole. In the upper or rear side of the dam is built a receiver so that when this plug is pushed out of the hole it will be deposited upon this structure instead of falling to the ground. The construction of this device is well shown in the illustration and needs no further description.

In front of the dam a buttress is built to hold the jack which is used when it is necessary to remove the plug. The details of this buttress also are shown and it needs

no further comment. When it becomes necessary to get behind the dam a jack is placed with one end against the plug and the other bearing upon the buttress. The plug may then be pushed back by the jack, and deposited upon the platform provided for its reception.

After access has been gained through the plug hole to the upper fall of the dam and the needed work or



DETAILS OF THE DAM

This shows clearly how the water wedges the plug into place and how this plug may be removed by means of a jack when the pressure of the water is removed.

inspection has been completed, all that is necessary to close the dam again is to pull the plug forward into place and the rising water will soon push it securely home, completely sealing the dam.

This whole device is simple and easily taken care of. In some places a mine dam is installed merely to hold water back, and it matters little if dirt accumulates behind it. In such a case a plug like this may be omitted. The main purpose in using the plug is to render it possible to get behind the dam to remove accumulations of dirt which otherwise might block the valves or pipes which extend through the structure.

Springfield District Has Lost Many Men

ACCORDING to John J. Watt, secretary-treasurer of a subdistrict No. 4 of the United Mine Workers of America, few recruits are being obtained for the occupation of coal mining. His subdistrict comprises mines in Springfield and the immediate vicinity. Mr. Watt declares that there has been a decrease of more than 2,400 mine workers in the subdistrict in the last three years, although the area covered by the subdistrict has been slightly enlarged.

His figures show that at present there are 9,100 paid members of the United Mine Workers in this district though there were nearly 12,000 members three years ago, when the territory was smaller. The industrial centers where the mine workers can obtain steady employment in steel mills and automobile factories have attracted the men from the mining communities.

Coal Age Index

THE indexes to *Coal Age* are furnished free to all who ask for them. The index for the first half of 1920 will shortly be ready for distribution, and a copy can be had by addressing a postcard to the Subscription Department of *Coal Age*.

Review of Williamson and Pike County Strike To Secure an Agreement with the Union

A Few Evictions Have Occurred—Union Hopes to Extend Operations from this New Focus of Unionism Toward McDowell Field—
Operators Assert 36 Per Cent of Mines Are in Full Operation

UPON the failure of the operators of the Williamson (W. Va.) region to recognize the union in that field, a strike order was issued by the officials of district 17 on Tuesday, June 29, calling all miners who had become affiliated with the United Mine Workers organization in Mingo County, West Virginia, and in Pike County, Kentucky, on a strike, to become effective Wednesday, June 30. As a result approximately 6,000 mine workers employed in the counties named laid down their tools.

The strike call applied to practically all the miners of Mingo County and to about 1,000 other miners employed largely by the West Virginia corporations on the Kentucky side of Tug River, in Pike County, Kentucky.

Although during the last two months most of the miners had been induced to become affiliated with the United Mine Workers organization, there had been no cessation of operations except at two or three places, but when C. H. Keeney, president of district 17, called a conference of the affiliated miners to be held at Williamson on Wednesday and Thursday, June 23 and 24, for the purpose of formulating demands to be made upon the operators and when the operators on their part declined to enter into the conference after being requested by officers of the union to do so, it became apparent that a strike would be called immediately.

HOPE BY STRIKE TO GET UNION RECOGNITION

The union officials declared that they desired the conference for the purpose of negotiating a wage agreement. Of course as attendance upon the conference referred to would have involved in effect the recognition of the union, operators declined to attend it, and the strike was called. It is stated that an effort was made by the U. S. Department of Labor through one of its officials, Charles Kerwin, to avert the strike if possible, but Keeney, president of the district, refused to postpone it.

Federal mediators in endeavoring to settle the controversy between the miners and operators say that the object of the Government was to prevent any cessation of production. The operators stated they had a similar purpose in resisting the unionization of their mines. They contend that they would be in a better position to maintain and increase production if the miners were not organized, calling attention to the fact that during the November and December strike of union miners it was the Williamson and other non-union fields which prevented the country from being frozen into submission to the miners' demands by a complete stoppage of coal production.

Claims are made by officials of district 17 that many families have been evicted from their homes in Mingo and Pike counties since the work of organization began. However, evictions in Mingo County have occurred at only a few operations. In most cases when mine workers joined the union they were permitted to continue to work and to occupy company houses. There has been nothing to indicate, so far, that there will be wholesale

evictions or any evictions at all even though miners, being in idleness, probably will not be able to pay the rental on the houses they occupy. There are three tent colonies occupied by the mine workers who were formerly in the employ of some of the companies in the Mingo and Pike county fields. It is alleged that efforts have been made by operators to secure miners from the outside with a view to continuing operations despite the strike, but little credence is given to the report.

SAY 36 PER CENT OF MINES ARE WORKING FULL

On July 5, five days after the beginning of the strike, operators of the Williamson field professed to be well satisfied with the strike situation in Mingo and Pike counties. At the end of the previous week it was stated by them that there were 29 mines out of the 80 mines in the field in full operation, and in addition to those mines there were a number of other mines still in operation, though with reduced forces. In substantiation of their claim that the calling of the strike had made no appreciable difference in production or in conditions existing before the strike, the loading of 227 cars of coal on Thursday, July 1, and of 219 on July 2 was cited.

In the week ending July 10 the Williamson field produced 867 cars, or 40,350 tons, of coal. On July 5 no coal was loaded but the output for the five days following was 177, 180, 180, 166 and 164 cars respectively.

Operators declared that only about 1,500 miners are employed in the strike area. About half that number, they said, had become members of the United Mine Workers organization. In the Pond Creek (Ky.) area, in which fully half the tonnage of the Williamson field is mined, the strike order exerted no perceptible effect, production there being normal. The union acknowledges that it has not made much progress in organizing mines on the Kentucky side of Tug River.

Officers of district 17 make the assertion that they will complete the organization of miners on Pond Creek and along Tug River in a short time and with that in view have leased 60 acres on Pond Creek, where a tent colony will be established. Mine workers' representatives also say they propose to prosecute vigorously the work of organizing the McDowell County miners.

The controversy is not as to wages, for the district president, C. F. Keeney, recently admitted that some operators in the Williamson field are paying a higher rate of wages than is provided in the Kanawha scale.

Nanty Glo Miners Stand by Weighmaster

THOMAS J. McDERMOTT, a check weighman, who is under bail for court on charges made by company officials, was the cause of a strike at the No. 3 mine of the Springfield Coal Co., Nanty Glo, Pa., June 17, when the management refused him permission to resume his work at the tipple. He had the highest number of votes but not a majority, as four men were candidates for the position. Nanty Glo is in the Johnstown district.



Discussion by Readers

Edited by

James T. Beard

Contract System of Mining Coal Gives Rapid Development

REFERRING to the inquiry of "Mine Superintendent" regarding the contracting system of mining coal, *Coal Age*, May 6, p. 959, permit me to describe briefly a system I have in mind and which has proved a great success in my own practice.

When coal is mined on contract by a reliable and competent man, experienced in mining and in the handling of men, not only is the mine superintendent relieved of much responsibility but the production is increased and the men work with far greater efficiency, which means the more rapid development of the property and a reduced cost of production.

The system to which I refer calls for a good practical mining man as contractor—one who has been in the game long enough to understand what the work requires and knows how to use his men to the best advantage. Such a one makes a contract with a company to mine a certain daily tonnage at a fixed price per ton and yardage. The contract may include hauling the coal to tippie or shaft bottom, or may cease with breaking down and loading the coal at the face.

OBLIGATIONS ASSUMED UNDER THE CONTRACT

The contractor hires and discharges his own men, who may be paid by the company and the amount of the payroll charged to the contractor, or he may pay them himself. In any case, the contractor or his agent is timekeeper. All material is generally furnished by the company under the terms of the contract. The contractor may hire his men at an agreed wage per day, or pay them on a basis of piecework as he thinks best.

By the terms of his contract, the contractor is held responsible for the proper performance of the work and the safety of the men he employs, in the same manner as a company is made responsible for complying with all the requirements of the law when operating their own mine. He may even be required to put up a bond to secure the company in the fulfillment of his contract.

In one instance that I recall, the headings in the mine had been advancing at the rate of 30 ft. in a week, previous to the work being let out to a contractor. Employing the same number of men as before, the contractor increased the advancement to an average of 68 or 70 ft. in the same headings, which shows what can be done by a more efficient use of the men and giving close personal attention to the work being performed.

Let me say here that men work harder and to better advantage when they are given more freedom of choice and made independent workers. The best results are obtained when a contractor tells his men they can quit and go home after completing a certain amount of work, regardless of how long a time they take in the performance. The task set is a fair day's work in the estimation of the boss and the result is the men work with a will.

On the other hand, where men know that they must

remain in the mine till the whistle blows at quitting time, there is no incentive for them to speed up and the chances are that the end of the shift finds their work not done. I have tried both of these schemes, but always found the first plan the one that gave the best results.

When driving a pair of headings where the average height of the coal was 3 ft. and there was 4 ft. of rock to be taken down, on the day plan, I could only make an advance of 50 ft. a week, until I made a change. I had employed eight men in driving the heading 12 ft. wide. Believing they could do better, I offered them a sort of subcontract with the result that the headings were pushed forward at the rate of 70 ft. a week. The men made more money and the cost of driving was less than on the day plan.

In closing, therefore, let me say, if you want results in putting coal on the tippie at a low cost of production, or wish to drive headings in record time put the proposition in the hands of an experienced and responsible mining man on a contract basis. Furnish him with all needed material and you need have no further worry about the high cost of production.

It is true that this type of contractor is not always easy to find; but when once found you are bound to see results; and all that remains for you to do is to measure up the yardage and weigh, load and market the coal. It is a surprise to me that more coal is not mined on contract than appears to be at the present time. To my mind, it is the surest way to get results.

Johnstown, Pa.

S. W. F.

Guardboards in Trolley Haulage

RESPONDING to the request of "Triprider," which appeared in *Coal Age*, March 11, p. 506, asking for the opinions of readers in regard to requirements of compensation-insurance regulations specifying a width of five inches between the guardboards on trolley wires, I want to say that five inches is entirely too small a space between the boards.

There does not seem to be any standard length for axles of trolley wheels; some are 3 in. and others are 3½ in. long. Now, no one who has had experience in trolley haulage in mines will deny that when a wheel has become somewhat worn and the motorman is hauling a trip on a heavy grade and he cannot run slow but must make time, there is every liability that the wheel will jump the wire at some point.

Then, what happens? Before the trip can be stopped the wheel has been caught between the guardboards and a hanger; and either the guardboard is ripped off or the trolley harp and wheel are pulled off from the pole. To avoid this accident it is my opinion the guardboards should be at least 5½ in. and often 6 in. apart, so as to give sufficient clearance for the wheel to pass the hangers without catching.

In a case such as I have mentioned there is danger that the motorman riding on the rear end of the loco-

motive, or the triprider behind, may be severely injured by the broken boards torn from above. In addition to increasing the width between the boards, I would have them hang 2½ or 3 in. below the wire.

Someone has advocated using old water hose 3½ in. in diameter cut open and supported over the trolley wire. This idea seems to me wholly impracticable. Few of the mines require the use of hose of that size, and there would be difficulty in keeping the rubber stretched apart and in place. Moreover, insurance regulations do not mention the use of rubber hose. In my opinion the safest plan is to space the guardboards further apart.

JOHN BUGGY.

Chambersville, Pa.

Flotation for Cleaning Coal Depends on Finding Suitable Frothing Reagents

AFTER reading the views of John V. Schaefer on flotation of coal, *Coal Age*, June 24, p. 1,316, I am induced to add further to the opinions I have already expressed in my previous letter, June 3, p. 1,155.

Although it seems that the application of the flotation process to the cleaning of coal is looking a long way into the future, it assuredly has some merits; and from laboratory results obtained to date, one can be safe in saying that coal can actually be cleaned by the flotation process notwithstanding the results of Mr. Schaefer's experiments conducted by and for himself.

There is little hope that the flotation process, by itself alone, would suffice for coal concentration on 100 per cent large scale operations; but it could be applied effectively as an adjunct to the regular water-jigging methods, and would also be useful in connection with the handling of secondary and refuse material and particularly sludge products produced from jig operations.

As a coal for this treatment would have to be crushed to pass at least a 10 or 30 mesh, it is a question whether coke ovens could handle as finely pulverized coal as this. There would also be the added danger of spontaneous combustion, in case these fines were put in storage piles. Transporting fine coal of this size to consuming plants would necessarily entail some losses, owing to leakage in transportation. The big question would also be the reduction of moisture in the fines to a degree suitable for consumption.

One of the first thoughts concerning the cleaning of coal by flotation was that certain coals might have some oil in themselves, that would render them amenable to this process without the addition of any frothing reagents, which would, of course, be highly desirable. Experimentation, however, failed to support this supposition.

The process appears to be by no means an economical one at the present stage of our knowledge, as the coal must be finely pulverized, then wet down with water so as to form a sludge, which is then treated with frothing reagents and finally agitated with air and water in the necessary substantial quantities. As the original opinion that coal carries its own frothing medium was not substantiated during experimentation, the difficult proposition now is to determine what chemical products are to be used that will be cheap and assist in a satisfactory separation as well.

If flotation coal was to be charged in byproduct coke ovens, the coal would carry into the ovens small quantities of either acid or alkaline frothing reagents, as

the case might be; and the serious question would then have to be considered as to what deleterious influence these products would have on the oven walls and the coking action in general.

During an extensive investigation of this subject some three years ago, it was found that when using coal of 30-mesh pulverization in a small Callow pneumatic flotation machine, with frothing reagents that cannot be given here, an 85 per cent recovery of clean coal was obtained which analyzed 7.44 per cent ash and 0.74 per cent sulphur, against a head or feed sample of 12.65 per cent ash and 0.86 per cent sulphur. This particular sample was not a high-sulphur coal, the object being more to determine the possible ash reduction, which appears to be highly satisfactory, ranging from 12.65 per cent to 7.44 per cent.

Operating on a 10-mesh coal in a mineral-separation machine with sub-aeration, a raw coal analyzing 16.61 per cent ash yielded 60 per cent of good coal at 6.50 per cent ash. The crux of the whole flotation scheme, with coal, is to determine the proper kind of frothing reagents necessary; and, if this is found, there appears to be no question but that a clear, definite and efficient separation can be effected.

It is gratifying that Mr. Schaefer took the time to discuss this feature of coal cleaning, as it may induce others who have studied coal flotation to come forward with their opinions. Considerable pioneering work in this particular field has already been done and it is quite likely that it will become an interesting subject in the chapter of fuels.

BYKEM.

Joliet, Ill.

Dry vs. Wet Hydrocarbon Gases

PECULIAR interest attaches to the question of what was the possible cause of the explosion that occurred some time since in the Buffalo mine working the upper Freeport seam, in the Cambridge district, in Ohio. In my opinion, most of the letters referring to the matter have ignored an important factor; namely, the presence of vaporized oil in this formation. I believe the only reference to that occurs in the letter of William Wesledge, *Coal Age*, April 8, p. 719, who regards it as a possible cause of the explosion.

Judging from what has been written, the common tendency of writers, is to assume that methane is the only explosive gas found in a coal mine; and, since this gas is lighter than air, it is taken for granted that it should be found at the roof. However, it remains for us to understand that the conditions surrounding the mining of coal are multitudinous and we have much to learn in this regard.

Since that occurrence, I have had the opportunity to study an occurrence of a similar nature, but one of a much more definite character, and it is my hope that there will be a full report of the same in future annals of Ohio coal mining. In that instance, the origin of the gas that exploded was definitely stated to be the oil coming from Mahoning sandstone, as a result of a fall of roof that occurred in the waste of the mine.

Those familiar with the character of this formation know that the Mahoning sandstone contains petroleum, either in pockets or impregnating the rock. The conclusion that this oil is a possible source of natural gas appears to be justified in the opinion of many. That being the case, it would follow that the composition of the gas would be similar to that of the oil vaporized.

While I am not able to say that the oil, in this instance, has been submitted to a chemical analysis, it may be of interest to draw attention to the difference between certain hydrocarbon gases, which has given rise to their being designated as "dry gas" and "wet gas." It has been found that the dry gas (methane) is not condensible into oil (petrol or gasoline). On the other hand, the so-called wet gas is condensible into these oily products.

Allow me to suggest that here, then, is the solution of our mystery in a nutshell. The specific gravity of the condensible hydrocarbon gases being greater than that of air, they would naturally accumulate at the floor of the mine. Let us hope that this investigation will be followed up along these lines, and that the distinction I have pointed out will be fully and clearly explained. It is my belief that this will give us a more intelligent understanding of what is otherwise mysterious in the matter of mine explosions.

JAMES ASHWORTH,
Livingstone, Alta., Can. Mining Engineer.

Safety in Trolley-Wire Protection

TROLLEY-WIRE protection in mines is an interesting question to all who are concerned in safeguarding the lives of workers underground. Men passing to and fro in the dimly lighted passages of the mine are often oblivious to the presence of danger from their proximity to a trolley or other live wire.

Reference has been made in previous letters to the requirements of compensation-insurance regulations that specify a width of five inches for the guardboards protecting trolley wires. Some have expressed the opinion that greater safety would be secured by reducing this width, while others have argued that the boards should be spaced further apart to avoid their being torn loose when the trolley jumps the wire, as frequently happens.

One thing is certain, however, if the mining laws or the insurance regulations specify a width of five inches between the boards there is no choice or alternative but to comply with that requirement, at least till it can be shown that a lesser or a greater width would afford greater safety or security in construction.

PROTECTION OF LIVES THE CHIEF OBJECT SOUGHT TO BE ACCOMPLISHED

As set forth in the excellent letter of G. E. Daugherty, *Coal Age*, June 17, p. 1,277, the purpose in view is protection of the lives of workers and permanence of construction. My belief is that the width of the guard boards apart is not of as much importance in respect to the protection they afford, as the fact that they are there and the wire is not left exposed.

For example, I believe that a workman absorbed in his own thoughts and coming in contact with the guardboard once will at once duck his head and lower any tools he may be carrying, and not permit himself to come so close to the wire again. In my opinion, not one workman in a thousand will allow himself to strike the boards a second time. It is true, of course, that when the boards are five inches apart a man's head can touch the wire, unless the latter is hung a few inches above the lower edge of the boards.

Now, in reference to permanence of construction, if the specified "five inches" is responsible for the difficulty experienced by motormen and caused by the trolley wheel becoming wedged tightly between the wire and the boards, there is some force in the argument for

increasing this width. But, it occurs to me that low coal or some other condition may have been responsible for the trouble mentioned by "Triprider," in the inquiry, March 11, p. 506.

As Mr. Daugherty has said, "Good workmanship is required to construct trolley guards at a distance of even five inches apart, and to increase this width would make the construction still more difficult." Nevertheless, if it is true that motormen are experiencing these difficulties and the trolley tears down the boards, or the trolley wheel and harp are pulled off the pole, something must be done to eliminate such troubles.

DANGER MUCH INCREASED WHEN A GUARDBOARD IS TORN DOWN

A guardboard torn down would leave the wire exposed and greatly increase the danger of men coming in contact with the latter, causing a possibly fatal accident. This is a condition that should interest insurance agents and companies and lead them to start a thorough investigation and if necessary make such changes in the regulations as will afford the greatest protection.

Permit me to offer the suggestion of hanging the guardboards on hinges that would allow them to swing outward and thus avoid the wheel becoming tightly wedged should it happen to jump the wire. The hinges can be arranged to let the boards swing both ways or one way only, as desired. With proper care and attention on the part of the motorman, it seems to me there is little need of the trolley wheel jumping the wire and causing trouble. Increasing the distance will not avail.

Let me add, in closing, it would be well to have guardboards, at all crossings where men must pass under live wires, whitewashed, as a warning to them to use needed caution to avoid contact with the wire.

Thomas, W. Va.

W. H. NOONE.

Center Posts on Airways and Travelingways Better Than Double Timber

KINDLY allow me to say a word or two in explanation of my meaning in regard to the standing of center posts on entries where roof conditions are favorable, instead of using booms or crossbars supported on two posts, as described in my previous letter.

The criticism offered by Andrew O. Bain, *Coal Age*, June 17, p. 1,275, was all right as far as it applies to haulage roads. It was not my meaning to use center posts on such roads, except in some special cases, as we all know haulage roads should be kept as free from obstacles as possible. It was my intention to suggest such post timbering on return airways, travelways and other narrow work where the roof is of a suitable nature. Posts should be set on the side of an entry, only when it is necessary to strengthen the rib.

As the editor has remarked, some entries require no timbering. I have seen hundreds of yards of double-track entry without a stick of timber supporting the roof, at a depth of eighty fathoms below the surface. But that is not the condition to which I had reference.

Under conditions such as I have in mind, it is my belief that if booms and side props were not used, but center posts stood leaving a good walking space along the rib, in traveling roads and rooms, the timbering would be more satisfactory. It will be but a few years, now, when there will be 50,000 ft. of air-courses driven under such conditions as these to which I refer.

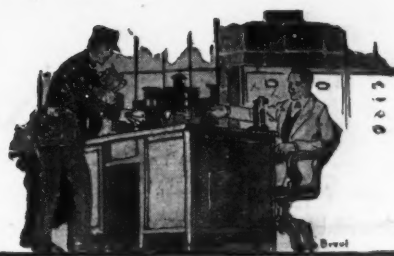
Nova Scotia, Canada.

MAC.



Inquiries of General Interest

Answered by
James T. Beard



Effect of Carbon Dioxide on the Explosion of Firedamp

PLEASE explain, in *Coal Age*, what would be the effect of adding carbon dioxide to firedamp. I have seen it stated that enough of carbon dioxide can be added to make a firedamp mixture non-explosive.

Topeka, Kan.

STUDENT.

Carbon dioxide when added to firedamp has the effect of reducing its explosive qualities. The reason is twofold: 1. Carbon dioxide is an extinctive gas; that is to say, it will not support the flame of a combustion. 2. The addition of this gas to firedamp dilutes the mixture and reduces the percentage of explosive gas. When this percentage falls below the lower explosive limit of methane, the firedamp becomes non-explosive. When a firedamp mixture of methane and air is at its maximum explosive point the addition of one-seventh of its volume will render the firedamp non-explosive.

Coals of Great Britain and the United States

WE SHALL be pleased to receive through the columns of *Coal Age* any information you may be able to give on the origin of the coals used in Great Britain for the manufacture of metallurgical coke in byproduct coke ovens. In a general way, we would like to ascertain whether or not these coals are of a later or an earlier geologic age, as compared to the coals of the United States, particularly the coking coals of Pennsylvania, West Virginia and Kentucky.

M. D. CURRAN,

Toledo, Ohio.

Supt. Byproduct Coke Plant.

This question was submitted to the chief geologist of the U. S. Geological Survey, David White, Washington, D. C., and brought the following response:

The coal used for the manufacture of coke in Great Britain is of Carboniferous age. The coal of the Appalachian region in the United States is practically all of Upper Carboniferous or Pennsylvanian age, only a little of it being Lower Carboniferous or Mississippian age. The coals of the upper Mississippi valley are also of Pennsylvanian age.

The lignite deposits of the Gulf Coast region are much younger, and are referred to the Eocene or early Tertiary period. The coals of the Far West are Cretaceous or Tertiary and very much younger than the coals of the Appalachian region.

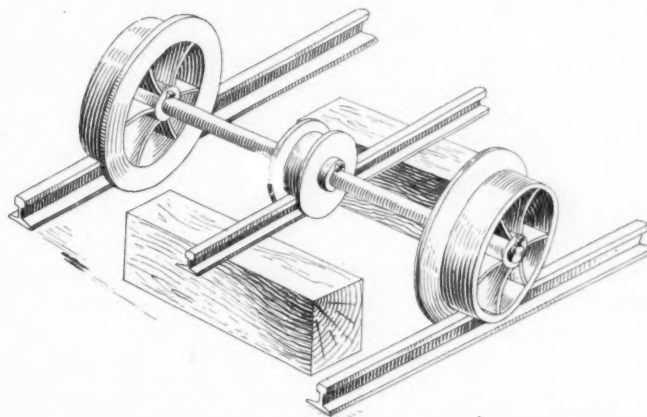
An excellent general discussion of the coal fields of the United States is contained in the Geological Survey Professional Paper, 100A, by M. R. Campbell. Unfortunately, however, this publication is no longer available, being out of print; but can be found in most of the large public libraries.

Though not so stated in Mr. White's letter, from another source of information we find that about three-

sevenths of the species of vegetable and animal fauna occurring in the coal beds of the United States are identical with those found in Great Britain, which fact is suggestive of the correlation of these deposits.

Prodigy in Mechanics

KINDLY permit me to submit, for my own information, the inclosed sketch showing three wheels keyed to a solid shaft and designed to travel on a track of three rails. Assuming that the two outer wheels are six inches in diameter and the center wheel only three inches in diameter, let me ask what would be the result if these wheels are mounted under a truck traveling on the track shown in the sketch. In



other words, what action would the center wheel make to cover the same length of rail as each of the outer wheels?

STUDENT.

Walston, Pa.

Such a construction as described by this correspondent can only be regarded as a prodigy in mechanics. It would have no practical value for any purpose whatsoever. Assuming that the load rests principally on the two outer wheels, the center wheel would slip on the rail an amount equal to the difference between its circumference and that of either of the outer wheels, since all the wheels must make the same number of revolutions in the same time, being keyed to the same solid shaft.

On the other hand, if the construction is such that the load is equally distributed on all the wheels there may result some slipping of the outer wheels on the rails; but this will be less than the slipping of the center wheel on its rail. The amount of the slip in each case, under the assumed conditions of loading and equal adhesion of the wheels to the rails, may be taken as practically in the inverse ratio of the diameters of the wheels. In other words, under equal loading and equal adhesion to the rails, the three-inch wheel would slip four times the amount of either six-inch wheel, since there are two of the larger wheels and but one smaller wheel; thus, $2 \times 6 \div 3 = 4$. We can see no purpose in such a question, however.



Examination Questions

Answered by
James T. Beard



Firebosses' Examination Held at Pittsburg, Kan., March 20, 1920

(Selected Questions)

Ques.—Why does an explosion of firedamp in a coal mine render the air dangerous to life and health?

Ans.—The afterdamp from an explosion always contains irrespirable gases that are generally poisonous. The afterdamp is a variable mixture of carbon dioxide, carbon monoxide and nitrogen, besides often containing more or less unburned methane. To breathe such air is dangerous to life and health not only on account of the poisonous character of the gases, but likewise because of the deficiency of oxygen the amount being less than what is necessary to support life. There is danger also of a further explosion when the mixture contains unburned methane that escaped combustion and which renders a second explosion possible on the admission of fresh air.

Ques.—What are the explosive proportions of marsh gas and air forming the firedamp found in all coal mines?

Ans.—The lower explosive limit of pure methane and air is reached when the proportion of gas to air is 1:13, or the mixture contains 7.14 per cent of gas. The maximum explosive point is reached when the proportion of gas to air is 1:9.57, or the mixture contains 9.46 per cent of the gas. The higher explosive limit of pure methane and air is reached when the proportion of gas to air is 1:5, or the mixture contains 16.67 per cent.

Ques.—What percentage of marsh gas mixed with air is necessary to show a flame cap?

Ans.—The percentage of methane (marsh gas) in air required to produce a flame cap in a safety lamp depends on the kind of lamp in use and the illuminant burned. Hydrogen gas burned in the Clowes hydrogen lamp, or acetylene gas burned in a carbide safety lamp, or naphtha-benzine or other highly volatile oil burned in a lamp is more sensitive to gas than the common non-volatile oils such as cottonseed, sperm or lard oil. The light volatile oils, however, produce a fuel cap that is often mistaken for a gas cap when no gas is present in the air surrounding the lamp. The gas cap produced in the use of a volatile oil also shows a greater height of cap, for the same percentage of gas, than a non-volatile oil. Lastly, much depends on the ability of the observer to detect the non-luminous flame cap in a safety lamp.

For these reasons, it is only possible to give a modified answer to the question asked, and to say that the average fireboss will seldom detect a flame cap in his lamp, when less than two-and-one-half per cent of gas is present in the air. An experienced fireboss, using a Davy lamp burning a good quality of cottonseed oil, can usually detect the first appearance of a cap when two per cent of gas is present in the air, while some firebosses fail to see less than three per cent.

Ques.—What dangers may arise from the improper care or assembling of a safety lamp?

Ans.—When a lamp is improperly assembled or any part is broken the lamp is not safe for use in gas, because the flame is no longer isolated from the gas-charged air surrounding the lamp. A lamp not properly assembled is imperfect and it is possible for flame to pass through the cracks in the joints between the different parts of the lamp and ignite the gas outside.

Again, improper care of a lamp makes its use dangerous. To be safe in gas, a safety lamp must be thoroughly cleaned and examined before being filled and prepared for use. A dirty gauze heats quickly in gas and has a tendency to pass flame, due to the burning of the particles of dust or dirt in the mesh of the gauze. When a lamp is not held in an upright position, its flame impinges on and heats the gauze enough to pass flame. Also, if the lamp is exposed to a strong air current or blast of air, flame may be blown through the mesh of the gauze and ignite the gas outside.

Ques.—Explain what causes mine fires, and how you would extinguish them.

Ans.—Mine fires are caused by the careless use of open lights in proximity to combustible matter such as hay, wood, powder, etc.; by the heating and spontaneous combustion of fine coal and slack in the gob; by the sparking of live wires, burning out of fuses or other causes of the ignition of gas and dust in the mine; by windy or blown out shots igniting accumulations of dust or gas in a place, or by the ignition of a gas feeder, in blasting. Where oily waste is allowed to accumulate at the shaft bottom or pumping stations, fire may result from its spontaneous ignition.

The extinguishing of a fire, in a mine, will depend on what headway it has gained before being discovered; also, its location and the means at hand for fighting the fire. There must be no delay in notifying and withdrawing the men from the mine the moment a fire is discovered. It is important to reduce, as far as possible, the amount of air passing over the fire. All approach to the place must be made on the intake side to avoid the danger of the men being overcome with the fumes and gases of the fire.

When a fire is discovered smouldering in the waste it should be promptly loaded out in steel mine cars if that is practicable. Water should be used with caution, in such a case, owing to the fear of the dampness increasing the trouble. In any event, all of the smouldering material must be removed and the place cleaned thoroughly.

Where an active fire has gained considerable headway immediate steps must be taken to get water to the fire. If this means is not effective the place must be sealed off by building airtight stoppings, after which a careful watch must be kept to ascertain the progress of the fire. Where everything else has failed, it may be necessary to flood the mine or such section of the workings as can be isolated and flooded with safety.

Anthracite Commission Decides That It Is Not Empowered to Consider Prices and Profits

Can Determine Only "Questions in Dispute"—Operators Present Thirteen Exhibits—Show Wage of Contract Miner Runs \$6.50 Per Start—Prove by Bank Deposits That Miner Has Money to Save or Spend

By D. C. ASHMEAD
Wilkes-Barre, Pa.

ON Monday, July 12, the Anthracite Coal Commission resumed its sessions and listened to the arguments presented by Jett Lauck in favor of a submission of the seven exhibits on cost of production, profits and prices. These exhibits are entitled "Relation of Wages to Costs of Production, Profits and Prices," "Profits of Anthracite Coal-Mining Companies," "Wholesale and Retail Prices of Anthracite Coal, 1913-1920," "Freight Rates and Cost of Transportation of Anthracite Coal," "Operating and Financial Performances of Anthracite Railroads," "Combination in the Anthracite Industry," "Summary, Analysis and Statement of the Foregoing."

The exhibits, according to Mr. Lauck, constitute a unit and show that prior to 1873 there was free competition in the production and distribution of anthracite, with a resulting oversupply of labor, fluctuations in production and employment and market discrimination, but that from 1875 to 1900 the banking house of J. P. Morgan & Co. and its financial associates stabilized the industry by securing control of the coal-producing areas and the transportation facilities then existing and proceeded to render impossible the development of additional facilities for transportation to the Eastern and other markets.

RAISED FREIGHTS TO COERCE INDEPENDENTS

Having first obtained control of the seven great anthracite-carrying railroads, they, through the subsidiary coal companies or departments of these railroads, controlled the anthracite mining operations and reserves. The anthracite operators raised railroad rates so as to force the independent operators to sell to them. The anthracite carriers charged the same rates to their own subsidiaries, taking the profits of the industry through the railroads.

Mr. Lauck added: "The monopoly thus established was created by financial methods which constitute a permanent handicap both to the worker in the coal mines and to the consumer of anthracite coal. Extravagant prices were paid to eliminate competition and fictitious securities were issued in large amounts, which constitute a drain not only upon the productive capacity of the present generation but upon wage-earners and consumers as yet unborn.

"Under the combination thus established excessive transportation rates, with consequent coal-company losses, have furnished apparent justification for high prices and low wages. It has amounted to a process of writing the losses of coal companies into the cost of transportation, thus justifying high traffic rates, and then of writing these high transportation costs into the price of anthracite charged to the local dealer, thus justifying high prices to the consumer.

"It is shown that the enormous inflation of capital and bonds through the assumption of coal-company losses by the railroads and through payment of inflated

prices for coal lands has resulted in enormous fixed charges which enter into the cost of anthracite transportation because interest on bonds is treated as cost



JETT LAUCK, CONSULTING ECONOMIST OF UNION

Author of the two exhibits published in *Coal Age* last week and protagonist for the union. Under cross-examination he disappoints his hearers by evading a direct answer to questions and replying not with a resounding "Yes" or "No" but with a qualifying "Yes, technically" or "No, constructively." It is hard to pin him down to a frank avowal.

and not as profit. The resulting high rates have enabled the anthracite railroads to pay dividends far above those of the other railroads of the country.

MINE PROFITS SMALL; INDUSTRY PROFITS LARGE

"The process just described, from which these high profits have resulted, is such that it is well concealed from the public and difficult to reach, for these methods have enabled the anthracite corporations to show margins between the cost of producing anthracite and the price at which it is sold at the mine, between the cost of transporting anthracite and the rate charged by the railroad, and between the total cost of the anthracite before it is delivered to the dealer and the price at which it is delivered to him, which are to all outward appearances no more than average. Profits in the industry in the real sense, therefore, are not mine-company profits but industry profits—a group of family profits accumulated from all the factors in the combination.

"The conclusions drawn from the study are that as the result of the combination which has been achieved we must look for anthracite profits not in the coffers

of the coal companies but in the profits of anthracite railroads, the profits of sales companies, and the profits of those who control the banking combine which has engineered the anthracite combination.

JURISDICTION SO APPLIED AS TO BE A DUTY

"According to a strict or legalistic interpretation of the jurisdiction of the commission, its powers and authority extend only to such issues as have been formally submitted to it by the operators and the mine-workers. But we conceive that the actual jurisdiction of the commission goes beyond the powers and scope that a strict interpretation would imply. To our mind its jurisdiction extends beyond the eighteen enumerated points [the eighteen demands] which have been specifically submitted for arbitration and regarding which the commission is empowered to give a direct and effective decision.

"In our estimation the commission has an additional implied jurisdiction which is limited only by the public interest. Its jurisdiction, in other words, is not limited to its powers to act directly and effectively in the premises but it has also an implied jurisdiction under which it may not be able to act directly but under which nevertheless it can exert its power indirectly by advice or recommendation to specific agencies having direct powers and jurisdiction.

"This implied jurisdiction of the commission—its duty even—arises from the peculiar circumstances under which the commission has been constituted. The parties to the present controversy, after prolonged controversy and mediation, were unable to reach an agreement. The dislocation of an essential industry became imminent. Interposition was, therefore, made by the President. A tripartite commission with a representative of the public as its head was selected to determine the matters in dispute. The vital factor in the situation then became the public interest. The commission is not, therefore, an ordinary arbitration board. It is a public body, charged not only with the duty and power of deciding certain issues as to wages and conditions of employment but also with the development of all the facts bearing upon the public interest."

BITUMINOUS COAL COMMISSION'S ACTION

Mr. Lauck went on to show that the coal commission appointed to adjudicate the bituminous controversy took a broad view of its powers and enumerated at length seventeen recommendations which that commission made, including suggestions for Federal, state and municipal purchasing of coal before July 1 of each year and a request to the Interstate Commerce Commission that it take under consideration the establishment of differential freight rates with low rates in the spring and high rates in the autumn months.

He quoted the Bituminous Coal Commission as follows: "In submitting this report particular attention is called to the fact that herein every effort has been made for the protection of the public, not only for the period under which this protection can be guaranteed by the Executive under the powers granted him by the Lever Act but it has been our effort to go into the underlying causes for high costs and to offer some remedy therefor—this in order that in the future when the Government relaxes its control over prices there may be a continuing force at work in furthering the public interest."

The Sankey Committee in Great Britain and the

Board of Arbitration created by mutual agreement between railroad locomotive engineers and railroad managers in Eastern territory also were quoted as instances where the arbitrators went further than merely to consider the question of wages. Quoting advertisements of the operators in 1916, Mr. Lauck showed that they then regarded the question of profits as having a bearing on wages and urged the right of the public to receive fair treatment as regards both.

DECLARES PROCLAMATION FAVORS INCLUSION

Upon the completion of Mr. Lauck's brief Philip Murray read the President's proclamation to the commission and mentioned the points of joint agreement between the operators, saying that the miners ought to be permitted to present this data, as an agreement was made that either side could submit whatever testimony it desired. If the commission did not consider such testimony relevant they could ignore it when they decided as to what their award would be. The mine workers, said Mr. Murray, should surely be allowed to present it. He also believed that the public should be fully informed as to the cost of production and as to the events leading up to the present situation. Thomas Kennedy pointed out that the operators had declared that they had the public interest in mind when they refused the wage increase. The commission then adjourned until 2 p.m.

At the afternoon session S. D. Warriner presented the arguments of the operators. He first called attention to the President's proclamation giving an interpretation of it which was just the opposite to that which the miners had taken, saying that the President did not imply that the jurisdiction of the commission went beyond the strict letter of the document.

EXPLAINS WHY EXHIBITS SHOULD BE EXCLUDED

In the opening words of his prepared plea Mr. Warriner denied that he had ever said that "the public is not interested in this case." His statement thus misquoted was "We are not trying this case before the public . . . we are trying it before this commission and the rules of procedure are for the commission itself; the public is not interested in that matter." In further explanation Mr. Warriner said that the commission was the best judge of what procedure was "best calculated to attain the objects of its inquiry."

The mine workers, said Mr. Warriner, were demanding "that the present wages of the anthracite mine workers be increased to correspond to the increase granted by the bituminous mine workers by the Presidential commission. The operators stand ready to give whatever the commission orders. "The real issue involved," adds Mr. Warriner, "is concerned with wages alone."

Consequently, as there is no disposition on the part of the operators to say either that they will not or cannot pay, why make inquiries on their profits or on the price at which they shall sell their product to the consumer? The mine workers declare that they want a living wage, and such a demand has nothing in it of the nature of profit sharing. They have not declared in their presentation that their wage is unfair but that it is unequal to their support. Hence the question is solely one as to the wages paid and the cost and standards of living.

Upon the conclusion of the reading of the brief Mr. Warriner said that the operators do not admit the truth

of the allegations in the exhibits contested and are confident that they could answer them to the satisfaction of the public and the commission, but they do not think that it is proper to do so at this time.

Mr. Warriner requested the commission to exclude from the records a number of editorials that had appeared in the public press concerning the contested exhibits which Mr. Murray had read during the morning session, and he pointed out the fact that if the mine workers' press bureau had not furnished this information to the press the articles could not have been written and that therefore the editorials did not really show the opinion of the public but only the opinion of the mine workers. The commission then adjourned until Tuesday.

COMMISSION RULES OUT EXHIBITS ON PROFITS

On the following day the commission gave its decision as to the disposal of the exhibits, refusing the mine workers permission to present them. The ruling was based on the fact that not only the correspondence relating to the calling of the commission but the proclamation under which the commission was instituted and also the demands presented by the mine workers referred solely to wages and not to profits or prices.

The commission in making its ruling recited that on May 21, 1920, President Wilson in his letter to the operators and mine workers said "I shall insist that the matters in dispute be submitted to the determination of a commission to be appointed by me." Later in the above communication the President said "I shall hold myself in readiness to appoint a commission similarly constituted to the one which I recently appointed in connection with the bituminous-coal mining industry."

The commission quotes the report submitted to the officers and delegates of the tri-district convention of the United Mine Workers of America, in which nothing is said about prices or participation in profits but where reference is made solely to wages. It also quotes a letter of June 1 of the representatives of the operators to the Secretary of Labor in which they agree to abide by the award of a commission appointed by the President and incidentally describe the purpose of the commission in these words—"to decide the questions in dispute."

"TO HEAR AND DECIDE QUESTIONS IN DISPUTE"

In the proclamation of June 5 the President again describes the commission thereby created as a commission "to hear and decide the questions in dispute between the anthracite coal operators and miners." The ruling goes on to recite the fact that "the miners have presented eighteen demands and certain conditions of submission" which are matters of record. Without specifically stating it as the fact the commission seems to lead it to be inferred—and it is undoubtedly true—that the mine workers in their demands make no reference to profits and prices, and in consequence these matters have no relevancy to the demands they are making. They consequently are not "matters" or "questions" which are or have been made "matters" or "questions in dispute."

The commission concludes:

"It is the opinion of the commission, and it now so rules, that the authority and jurisdiction of the commission are specifically outlined in these documents

and that the "matters in dispute" to be decided fall within the limit of the eighteen demands.

"The commission does not recognize the interpretation of implied jurisdiction as broadening the scope of the public interest but is of the opinion, and so holds, that the public interest represented in this controversy is confined to the question of wages, hours of work, recognition of the United Mine Workers of America, and other matters clearly stated in the eighteen demands.

"The reference in the President's communication to a commission 'similarly constituted to the one appointed in connection with the bituminous-coal mining industry' offers no suggestion as to powers, duties or jurisdiction. The commission therefore holds that this paragraph refers solely to the representative character of the commission in which the parties to the dispute and the public are represented."

Turning then to the public interest in the controversy the commission says:

"The commission is of the opinion and now rules that the seven exhibits purporting to set out the relation between wages and wholesale and retail prices, the situation as to freight rates, the operation and financing of anthracite railroads and other exhibits, are not germane to the matters in dispute and to the issues before this commission as outlined and defined by the eighteen demands.

"The commission fully recognizes the public interest in these questions and their vital importance to the public welfare. The commission, however, recognizes the limits of its own authority and therefore rules that those exhibits to which objection has been raised offer no contribution to the solution of the issues pending, and will not be admitted as part of the evidence in the case."

OPERATORS AT LAST OPEN THEIR CASE

Following this decision the operators presented three exhibits, the major one of which, known as No. 1, answers in order the eighteen demands of the mine workers. This is printed at length in another part of this issue. In this exhibit is explained how the erroneous estimate of the days worked by the anthracite and bituminous mines in 1919 was made and that it was a calculation based on certain assumptions now known to be untrue. They had been applied with success to the production of 1918 but it was not realized that conditions had so changed in 1919 (as a result of the lack of demand for culm coal in the anthracite region and for reasons not so obvious in the bituminous region) that the assumption could no longer be sustained.

To back up their contentions the operators accompanied this exhibit with another showing how many days actually were worked by the mines at a large percentage of the collieries in the anthracite region. This also is published in this issue, it being incorporated in the main exhibit, to which it properly belongs.

HARD-COAL BANK DEPOSITS SHOW BIG GROWTH

Another feature in the principal exhibit refers to the growth in bank deposits of the anthracite region. This was presented as evidence that the anthracite-mine workers were not receiving \$24 less every month than they were expending, which alleged fact Mr. Lauck in his exhibits tried to impress on the commission

as being the unquestionable but deplorable truth regarding the present situation.

On July 14 the operators continued the presentation of their case before the commission and submitted to that end a series of exhibits in direct reply to those offered by the mine workers. The first of these is known as Operators' Exhibit No. 5 and is entitled "Statement Showing Total Net Earnings of Contract Miners Per Start During the Months of October, November and December, 1919, at Operations of Nine Companies Producing About 75 Per Cent of the Total Anthracite Output." Despite the length of the title the exhibit is so short that it may be reproduced here in full:

Total miners' starts	2,135,584
Total miners' net earnings	\$13,883,058
Average net earnings per start	\$6.50

Applying the figure \$6.50 per start to the average of 281 starts made by the above companies the annual earnings of contract miners will be seen to have been \$1,826.50. It may be added that this figure does not represent the full average earning nor the earning that the average man could have made had he utilized his opportunity to labor to the fullest advantage.

WAGE NOT BASED ON WORKING TIME IN STATE

The next document presented was recorded by the commission as Operators' Exhibit No. 6 and it bore as its title the notation "In Reply to Miners' Exhibit No. 5, Irregularity of Employment in the Anthracite Industry." It points out that any comparison between the time worked in the Pennsylvania bituminous mines with the time worked in the anthracite industry is unfair because all the wage settlements in the bituminous regions are based on the regularity of operation of the mines of the whole of the Central Competitive field, which includes western Pennsylvania, Ohio, Indiana and Illinois.

Wages are fixed in that field by a consideration of the average running time and earnings of the whole area and not of any part. The document then presents a table showing the average working time in the anthracite region and in the bituminous coal fields. It exhibits the fact that the days worked in the Pennsylvania bituminous coal field much exceed the number worked in the Central Competitive field and in the whole United States, but even though that is a fact the average number of working days in the last ten years has been higher in the anthracite mines than in the Pennsylvania bituminous coal mines.

Here again were submitted those charts which were published last week in *Coal Age*, showing that the anthracite industry is becoming a full-time operation, while the bituminous coal industry is as irregular as ever in its operation. Here again was presented the fact that the statements of the mine workers' advocates to the effect that last year the mines of the anthracite region worked only 252 days was incorrect and led to false conclusions. The correct figure, this exhibit reiterates, is 273 days.

The author of the exhibit points out from Mr. Lauck's own figures that the conditions in the anthracite region are not abnormal, as can be seen from the fact that the average production of domestic anthracite for the four-year period ending 1915 is only 1,600,000 tons more than for the four years ending in 1919 and that an increase so small as this can be accounted for by the increase in population in the area supplied.

Mr. Warriner also points out that it is the domestic market that sustains the production of anthracite and that the production of coal for use under boilers is merely incidental. Consequently the domestic production is the criterion on which to base any predictions as to the probability of future steadiness of production.

LAUCK REGARDS HARD-COAL MINING AS EASY

The scarcity of mine workers during the last few years fully confirms the contention of the operators that it will require every possible day of activity of all the employees to meet the future demands on the industry. Mr. Lauck in his exhibit made the statement that anthracite mining was not as difficult as the mining of bituminous coal, but Mr. Warriner in this exhibit well shows that the mining of anthracite is the more complicated of the two. The distorted coal seams, the enormous quantities of water to be handled (an average of eleven tons being pumped or hoisted for every ton of coal produced), the careful preparation of coal in the breaker, the difficulty of disposing of the smaller sizes, all combine to make the production of a ton of anthracite more difficult than the production of an equal quantity of bituminous coal.

The exhibit states that Mr. Lauck's closing section of the exhibit, which is entitled "Probable Irregularity in the Future," is based on no authoritative data and is merely an expression of opinion made by one who in his testimony admitted that he had no technical knowledge of the anthracite industry.

COMPARISONS THAT DO NOT COMPARE

In "Operators' Exhibit No. 7 In Reply to Miners' Exhibit No. 4" the operators point out that the latter exhibit contains in its basic figures three fundamental errors which vitiate all the deductions and conclusions drawn in the summary. These errors are:

- (1) Use of figures that are not comparable:
 - (a) For the two industries in the same year.
 - (b) In the same industry for different years because drawn from three different sources and compiled by different methods.
 - (c) For 1919 because compiled by different methods. Had either method been applied to both consistently, results radically different would have been obtained.
- (2) Use of figures too limited to be representative.
 - (a) Figures for 1916-1918 are based on data of weekly earnings of certain employees who, meeting with accidents, happened to come under the jurisdiction of the Workmen's Compensation Commission. Such figures are not adequate as a basis for arriving at the course of the earnings in the respective industries.
 - (b) The figures for daily full-time earnings in the bituminous industry as secured in the June-to-August, 1918, survey of the U. S. Bureau of Labor Statistics are based on the earnings of only about one per cent of the total employees in the industry.
- (3) Use in the computations of the exhibit of the estimate of 252 days as the number of days worked in the anthracite mines in 1919, whereas the actual number was 273 days.

A full account of the rest of this session will be published in next week's Coal Age.



The Labor Situation

Edited by
R. Dawson Hall



Bethlehem Steel's Coal Mine Still Works

WHILE a strike order which would have affected operation at the Penn Mary Coal Co. mines on the Morgantown & Kingwood R.R. in Preston and Monongalia counties was issued some time ago, it had been held up pending a conference, according to information given out by officials of district 17, United Mine Workers. The Penn Mary company is a subsidiary of the Bethlehem Steel Corporation.

Right of Motorman to Work When Requested Established by Failure of Mine Strike

A STRIKE at the No. 2 plant of the Morgantown & Cleveland Coal Co.'s plant near Morgantown was short-lived, lasting only over Tuesday and Wednesday, June 29 and 30. About a hundred miners struck because a motorman drew coal out of the mine when some of the miners did not want to work. It is alleged that the miners insisted upon the discharge of the motorman, the company refusing to take any such action, the miners thereupon going on strike.

Deputies at Roderfield, W. Va., Ambushed and Shot; Deputy Kills Stalking Miner

TROUBLE was precipitated by an attempt to organize the miners at Roderfield, in McDowell County, W. Va., on Sunday, July 4, one miner being fatally wounded and three other men wounded to a less degree in a clash between miners and deputy sheriffs. Earlier reports indicated that the clash had assumed the proportions of a pitched battle and that there had been wholesale killing. This was not true. In the list of injured were J. W. Rose, a miner who will hardly recover; John Mitchell, a deputy sheriff, slightly wounded; Claude Akers, deputy sheriff, slightly wounded by shot from shot gun; John Saylor, miner, of Kentucky, slightly wounded.

According to the best information obtainable three deputy sheriffs, Mitchell, Akers, and Cates, were sent to Roderfield from Welch, the county seat, when it was learned that a man named Munsey was attempting to organize about twenty or thirty miners. Evidently the miners in meeting had sentries posted, for as the deputies were passing along the county road fire was opened on them from ambush. Two were wounded and one of the deputies hid behind a rock. When the miners in ambush came down to investigate what their shots had done Cates, the unwounded deputy, opened fire on them, wounding two. One of the two, J. W. Rose, was quite seriously wounded. The other miners broke for cover. Nine men implicated in the trouble were placed under arrest and lodged in the jail at Welch.

When a subordinate in the union sent in the first report of the shooting to the officials of district 17, United Mine Workers, it contained the information that miners were being slaughtered. On the strength

of that report, District President Keeney wired President Wilson that miners were being murdered and that unless such outrages ceased the whole state would be plunged into civil war.

While, generally speaking, there does not appear to be much sentiment among the miners of McDowell County for the unionization of the field, yet Roderfield has always been more or less of a hotbed of unionism, although no locals have ever been organized there. The Flanagan Coal Co. among others, operates at Roderfield.

Following the clash on Sunday, July 4, Sheriff Daniels of McDowell County took a force of one hundred deputies to Roderfield and kept them there for several days.

R. B. Page, colored agitator, was arrested on Monday, July 5, on a charge of inciting to riot. He had gathered together seventy-five men and had started for Roderfield. Page was given a preliminary hearing on July 7 and his case was continued to July 9.

When Miners Try to Work They Are Fired On

FOLLOWING an exchange of shots between striking miners on the one side and loyal employees of the Borderland Coal Co. on the other side at Borderland, W. Va., in the Williamson field, on the morning of July 7, Judge James Damron of the Mingo Circuit Court swore in fifteen deputies as a safeguard against further trouble and sent them to the scene of the trouble soon after the shooting. At a late hour on the evening of that day the situation at Borderland was reported to be quiet.

It is estimated that more than one hundred shots were fired, the striking miners starting in to shoot at the mouth of the mine of the Borderland Coal Co., located on the Kentucky side of Tug River, and later directing their fire toward the tippie, which is on the West Virginia side of the river. Deputy Sheriffs on the Kentucky side together with a number of old employees of the coal company who refused to join the union returned the fire, raking the hillside where the miners were hiding in ambush. No casualties were reported by the company. It is understood that one of the strikers was slightly wounded and later removed to the house of a friend.

Union Mopping Up Non-Union Areas on Coal and Elk Rivers in West Virginia

ON THURSDAY, July 1, two hundred miners on Coal River, in West Virginia, were called out on strike by W. M. Blizzard, president of sub-district 1 of district 17, United Mine Workers. The companies affected by the strike order were the Madison Coal Co., the Fire Block Coal Co., and the Spear Eagle Coal Co. The workmen of the companies named were ordered to strike because it was alleged they had no contracts with their employees.

NEWS FROM

THE CAPITOL

BY PAUL

WOOTON



Coal and Coke Exported During May

EXPORTS of coal and coke during May, 1920, as compared with the corresponding month of 1919, taken from the returns of the Bureau of Foreign and Domestic Commerce, were as follows:

COAL AND COKE EXPORTS IN GROSS TONS		
	May, 1919	May, 1920
Coal		
Anthracite.....	398,796	277,197
Bituminous.....	1,429,706	2,400,821
Exported to:		
Italy.....	35,908	380,015
Netherlands.....	4,272	215,823
Sweden.....	22,792	84,532
Switzerland.....	6,989	84,272
Canada.....	1,088,026	716,453
Mexico.....	6,904	7,121
Br. West Indies.....	10,144	6,232
Cuba.....	90,112	113,861
Other West Indies.....	1,770	11,438
Argentina.....	22,589	101,144
Brazil.....	109,868	73,190
Chile.....	4,931	40,488
Uruguay.....	8,362	31,128
All others.....	17,039	535,124
Coke.....	33,299	42,07

Stocks of Railroad Fuel Are Low

INCOMPLETE returns on stocks of fuel coal held by the railroads, according to a report issued by the Geological Survey, indicate that on June 1 stocks were unusually low, and further that between Feb. 29, the close of Federal control, and June 1 there was a sharp decline in stocks.

These statements are based on reports to the American Railroad Association made by 120 of the principal

carriers. Stocks of bituminous coal held in cars by these roads declined 7 per cent from Feb. 29 to June 1; stocks in piles declined 34 per cent. For all stock the percentage of decrease was 21.

Stocks held by the New England roads decreased more sharply than for the country as a whole—32 per cent as compared with 21 per cent.

Market Reports on Soft Coal Under Investigation

AN INVESTIGATION of the activities of associations of producers of soft coal in the matter of exchanging reports of prices on sales is being undertaken by the Department of Justice. In connection with this investigation the following letter has been sent to all secretaries of local associations:

There is transmitted herewith for your information a copy of the statement given out by the Department of Justice on March 17, 1920, calling attention to the recent decision of the U. S. District Court at Memphis, Tenn., condemning the interchange of reports as to prices received on actual sales as practiced by the members of the so-called "Open Competition Plan" of the American Hardwood Manufacturers' Association.

Pursuant to that statement, this department recently began an investigation of associations of producers of soft coal alleged to be exchanging reports of prices received on actual sales.

This department was thereupon informed that the Franklin County, Williamson County and Saline County coal operators' associations, with headquarters at Chicago, Ill.,

Estimated Monthly Production of Coal by States, January-May, 1920*

(NET TONS)

State	January	February	March	April	May	Total Five Months
Alabama.....	1,740,000	1,409,000	1,565,000	1,419,000	1,502,000	7,635,000
Arkansas.....	221,000	179,000	204,000	151,000	179,000	934,000
Colorado.....	725,000	843,000	595,000	667,000	729,000	3,559,000
Illinois.....	8,760,000	7,575,000	8,721,000	6,580,000	6,700,000	38,335,000
Indiana.....	2,540,000	1,843,000	2,052,000	1,436,000	1,427,000	9,298,000
Iowa.....	877,000	787,000	850,000	731,000	709,000	3,954,000
Kansas.....	699,000	560,000	638,000	502,000	572,000	2,971,000
Kentucky.....	2,822,000	2,414,000	2,572,000	2,172,000	2,399,000	12,379,000
Maryland.....	301,000	217,000	366,000	310,000	306,000	1,501,000
Michigan.....	154,000	118,000	122,000	124,000	83,000	601,000
Missouri.....	564,000	484,000	547,000	423,000	480,000	2,498,000
Montana.....	506,000	405,000	367,000	358,000	288,000	1,924,000
New Mexico.....	317,000	275,000	314,000	258,000	257,000	1,421,000
North Dakota.....	84,000	63,000	58,000	54,000	41,000	300,000
Ohio.....	3,641,000	2,962,000	3,541,000	2,932,000	3,361,000	16,437,000
Oklahoma.....	405,000	338,000	327,000	314,000	323,000	1,707,000
Pennsylvania (bituminous).....	13,761,000	11,323,000	13,435,000	11,019,000	11,126,000	60,664,000
Tennessee.....	639,000	488,000	551,000	487,000	507,000	2,672,000
Texas.....	149,000	110,000	104,000	121,000	129,000	613,000
Utah.....	271,000	473,000	482,000	319,000	382,000	1,927,000
Virginia.....	990,000	716,000	882,000	829,000	802,000	4,219,000
Washington.....	369,000	304,000	334,000	294,000	257,000	1,558,000
West Virginia.....	7,047,000	5,523,000	7,083,000	6,190,000	6,175,000	32,018,000
Wyoming.....	962,000	819,000	815,000	681,000	720,000	3,997,000
Other States (†).....	11,000	10,000	12,000	10,000	11,000	54,000
Pennsylvania (anthracite).....	7,366,000	6,335,000	7,240,000	6,593,000	7,745,000	35,279,000

* In this table, issued by the Geological Survey, attempt is made to estimate the production of coal, by States, for the first five months of the year 1920. The data available upon which to base these estimates are weekly figures of the number of cars of coal loaded by 137 bituminous coal-carrying roads and 9 anthracite carriers. Experience indicates that the estimates of current production for the country as a whole are probably within one or at the most two per cent of the actual production. In the case of individual states, however, the margin of error may be much greater. When a carrier originates coal in more than one state it is often necessary to apportion its tonnage arbitrarily, a task exceptionally difficult during recent months, when the switchmen's strike has made conditions generally abnormal. The estimates presented will be revised from time to time as additional data become available.

† California, Georgia, Idaho, North Carolina, Oregon, and South Dakota.

had discontinued the practice of exchanging such reports since the above mentioned decision of the District Court and since the issuance of the aforesaid statement of this department.

In order to facilitate the investigation, please inform the Department of Justice, Washington, D. C., whether the association which you represent is at present engaged in the practice of exchanging reports as to prices actually received.

If your association is now engaged in the interchange of such reports, please send to this department at your earliest convenience a complete set of such reports as distributed to the members of your association during the months of April, May and June, 1920.

Coal Operators Meet New England Representatives

THOSE who attended the New York conference of bituminous operators and the Fuel Administrators or their representatives from the New England States at the Belmont Hotel on Monday, July 19, agreed that the lack of cars was responsible for the coal situation in those states. The New England Fuel Administrators contended that unless their coal requirements are met many industries will be compelled to suspend operations next winter. It was agreed at the conference that until the railroads are able to furnish more cars to carry the coal from the mines to the markets, shipments from the Atlantic ports will have to be depended upon to meet the situation in New England.

Those who attended the conference included James J. Storrow, Fuel Administrator of Massachusetts; H. J. M. Jones, of Vermont; E. R. Joselyn, secretary to Maine's Fuel Administrator; A. T. Slayton, New Hampshire's Fuel Administrator; Thomas W. Russell, Fuel Administrator of Connecticut; James E. Bradley, Dundon, W. Va., vice-president of the National Coal Association; Thomas H. Watkins, president Pennsylvania Coal & Coke Co.; Thomas F. Farrell, Pocahontas Fuel Co.; J. W. Searles, Pennsylvania Coal & Coke Co. and former Deputy Commissioner of the Tidewater Coal Exchange, and F. W. Wilshire, Consolidation Coal Co.

Embargoes Urged by Operators and Railroads to Force Coal to Lakes

AN ORDER will be issued by the Interstate Commerce Commission toward the end of this week, it is believed, putting into effect a system of embargoes intended to force coal up to the Lakes. The order is expected to include provisions stimulating the flow of coal to New England and to Canada. Representatives of the operators and of the railroads presented the joint plan to Commissioners Clark, Aitchison and Potter at an executive session Monday, July 19. While all concerned declined to discuss the details of the proposal it is understood that the plan as regards Lake movement will be accepted by the commission with slight modification, but the commissioners were not so well impressed with the plan which had been worked out for New England. The representatives of the carriers declared the plans they submitted are entirely feasible from a railroad standpoint.

Since the process of increasing coal production can only be gradual it is recognized that the embargo in favor of Lake coal will acutely pinch other consumers who are drawing their supplies from the same producing area. An effort will be made to acquaint these consumers with the necessity of reduced supplies for a short

period until the increased car supply brings production to a point where they can be supplied as well. It is pointed out that the public utilities are protected since they have assigned cars.

The operators were represented by D. B. Wentz, J. D. A. Morrow and C. P. White. They made it clear that they represented operators as a whole, and not the National Coal Association. Railroads were represented by Daniel Willard and A. G. Gutheim. Herman Griggs was present for the Lake Erie Ore and Coal Exchange, while W. H. Groverman and Judge McGee represented the Northwestern docks.

Prices for Settlement of Tidewater Accounts Are Announced

THE Executive Committee of the Tidewater Coal Exchange has fixed the prices at which Commissioner J. W. Howe shall make settlement for tonnage between debtor and creditor members as of July 1. At the New York piers the prices fixed for Pools 1, 9, 37, 39, 60 and 71 is \$11; Pools 30, 38, 40 and 61, \$10.75; Pools 4, 10, 31 and 62, \$10.50; Pools 32, 33 and 43, \$10.25; all other pools with the exception of Nos. 35 and 45, \$10; Pools 35 and 45, \$9.75.

At the Philadelphia and Baltimore piers the prices on the individual pools are 25c. less than at the New York piers, while at Hampton Roads the prices are as follows: Pools 44, 54, 64 and 84, \$11.25; Pools 1, 2, 2P and 42, \$11; Pool 3, \$10.75; Pools 41, 43, 51, 53, 61 and 63, \$10.25; Pools 5, 6, 7, 8, 40 and 56, \$10; and Pools 32 and 35, \$9.75.

As soon as the accounts of the debtor and creditor members can be verified the commissioner will send a statement to each of such members.

National Coal Association Defers Action On Committee Reports

THE board of directors of the National Coal Association met in Washington on July 14 and 15. Difficulty was encountered in assembling a quorum because so many of the directors were either called to New York to attend the regular monthly meeting of the Smokeless Association or had been detailed to work with the committee of railroad executives. It is understood that only routine business was transacted and that another meeting will be called for next month to finish consideration of committee reports.

Will Some Coal Age Reader Help Us With This Inquiry?

McGraw-Hill Company, Inc.,
Tenth Ave. at 36th St.,
New York, N. Y.

Attention "Coal Age."

Gentlemen:

Kindly furnish us rates and also advise the possibility of successfully advertising in your publication for a camel to drink the water accumulating in the mines on idle days, to avoid pumping expense, and a Joshua to command the roof to stand still, and thereby eliminate another item of idle-day expense.

Applications should be made to Every Operator, Anywhere.

Yours very truly,
O. U. CARSUPPLY.

Railway Executives Adopt Co-operative Plan To Improve Traffic Situation

FOLLOWING the meeting of coal operators and railroad officials at which the plan for controlling and making better the distribution of bituminous coal was discussed the Association of Railway Executives, of whom more than 100 were assembled, the same afternoon considered the situation of transportation generally. The outcome of the meeting was a resolution urging all members to devote their utmost energy to the more intensive use of existing equipment and to adopt a program to be followed in this connection in co-operation with the public to secure for the country as a whole:

An average daily minimum movement of freight cars of not less than thirty miles per car per day.

An average loading of thirty tons per day.

Reduction of bad order cars to a maximum of 4 per cent of total owned.

An early and substantial reduction in the number of locomotives now unfit for service, and

More effective efforts to bring about the return of cars to the owner roads.

It also was resolved that all railroad companies shall forward to the advisory committee or such agency as the latter may designate reports that will enable a check to be kept currently of performance under this resolution, and the advisory committee shall arrange for comparative compilation of such reports and make distribution to the individual companies.

Indiana Considering Legislation to Control State Coal Industry

GOVERNOR James P. Goodrich of Indiana has called upon Ele Stansbury, Attorney General and an Indianapolis attorney, to pass upon the legality of a bill now prepared providing for the appointment of a state coal commission, which would have full authority to fix the price of coal in Indiana and to compel distribution within the state until all domestic needs are filled. The bill is the outgrowth of strong opposition to the Governor's idea for a state-owned and operated mine to provide coal for the state institutions.

The Governor declares that if it is found that Indiana has the power to enact such legislation to give relief from excessive coal prices to the people of the state he will submit the measure to the special session of the Legislature now in session and will urge its passage. The measure calls for the appointment of a commission of three members, to be known as the Indiana Coal Commission. These commissioners would have full authority to make exhaustive investigations of the mines of Indiana and to command any kind of reports that would enlighten them as to the cost of production and actual operating conditions of the industry.

The commission would have the power to fix the price of coal for sale within the state, and the bill also would vest the fuel commission with power to regulate the distribution of coal. The commission would have the right to limit the sale outside the state of coal mined in Indiana until all needs within the state are filled. In the event that any operator failed to comply with the provisions of the law or the orders of the commission, and willfully obstructed production, the bill provides that the mine or mines in question can be

taken over and operated under the direction of the state commission. The owner of the mine in such case would be paid all operating expenses and a fair profit on his investment.

The bill is said to be an innovation in state legislation. While its legality is being determined little action is expected to develop on the state-owned mine bill, but opponents of the bill are still vigilant lest it be pushed through hurriedly while attention is being diverted to the last bill.

The important legal question being considered by the Attorney General is the authority of the state to empower a commission to limit the distribution of coal to Indiana consumers until they are adequately supplied.

How Public Utilities May Get Assigned Cars

THE New York Central Railroad Co. has announced that before arrangement for assignment of cars at coal mines on its lines, or before applying to other lines for assignment of cars for the benefit of public utilities located on its lines, as provided for in service order No. 9, it will require application to G. N. Snider, coal traffic manager, from the public utility using bituminous coal, showing full answers to the following inquiries. This applies to the lines of the New York Central east of Buffalo.

- (1) Applicant's name and address.
- (2) Describe fully nature of public service performed.
- (3) Where and on what railroad delivery is taken.
- (4) Tons of bituminous coal on hand.
- (5) Average weekly consumption bituminous coal at present and similar average for the year.
- (6) For each coal shipper under contract with applicant give name and address of shipper, names and railroad location of mines, contract tonnage, date contract shipments were to commence, rate of weekly shipment, shortage to date.
- (7) For which of such shippers and to what extent are assigned cars desired under this order?
- (8) Date of written communication from each such shipper agreeing to accept and load such assigned cars.
- (9) In case of gas plants also give details as to your present water-gas situation.
- (10) In case of electric plants state to what extent hydro-electric power is developed and whether coal requirements under inquiry 5 have made proper deduction for hydro-electric power.
- (11) Certificate by responsible officer of the applicant company that the answers to the above inquiries are correct and that if, as a result of these assigned cars, more coal is received than necessary for average current consumption we will be immediately notified accordingly so assignment of cars may be stopped.

Forbids Confiscation of Government Coal

ANNOYING confiscations of coal consigned to the Government fuel yard at Washington have led the Interstate Commerce Commission to issue the following notice to all carriers:

"The commission's attention has been called to the fact that railroads frequently confiscate coal consigned to Government departments. It is obvious that railroads should refrain from confiscating coal consigned to the War Department or other Government departments."

Coal Operators and Railroad Officials Agree on Solution of Coal Situation

Railroad Executives Call on National Coal Association for Assistance—Operators Appoint Committee to Act for Coal Industry—Program Calls for Increased Production and Better Distribution—Action Considered a Step That Foreshadow's End of Nation's Coal Shortage

WHEN Daniel Willard, president of the Baltimore & Ohio and chairman of the board of the American Railway Association, on July 8 called on Colonel Wentz, president of the National Coal Association, for the assistance of the coal operators in solving the problem confronting the railroads today of giving the nation an adequate coal supply, the first step was taken that is expected to lead to an end of the serious shortage that now exists. Until now the Interstate Commerce Commission has been dealing with the situation without consulting or advising with the coal men, and progress has been too slow to satisfy the railroad executives.

Colonel Wentz had already called a meeting of all coal operators of the country, without respect to affiliation with the National Coal Association, for Monday, July 12, in Washington. At this meeting, attended by 130 representative coal operators from all over the country, the decision was reached to put in the hands of a committee the entire responsibility for presenting to the railroad officials and, through them, the Interstate Commerce Commission and the government, a feasible plan for meeting the situation. This committee was clothed with full power and directed to seek a common ground on which to meet the railroads.

The committee of operators met the railroad officials in New York on Wednesday, July 14, at 2:30 p.m., after having spent the morning in preparing the data that had been assembled in Washington the day before.

As was anticipated, the railroads knew of no other way to solve the problem of distribution than by assigned cars. The operators vetoed this method and made the counter proposal that as the present difficulty is the result of lack of transportation the first step should be to increase car supply at the coal mines generally and to give particular attention to those fields that furnish coal to the sections where the situation is critical, such as the Northwest and New England. Instead of assigning cars for individual consumers or even for the Lake trade it was proposed that distribution be guided by railroad embargoes placed with due respect to the needs of particular consuming markets. By this method the shipper of coal who is obliged by railroad embargo to send his coal in a particular direction and prevented from shipping to some other, will be protected in so far as his contract obligations are involved in the same way that he always has been protected by embargoes.

It was recognized that there is hardly a point in the Eastern territory at which there is not now congestion to such a degree as to warrant a railroad embargo. The proposal was accepted by the railroad officials as the best solution proposed, and steps were at once taken to work out the details in form for recommendation to the Interstate Commerce Commission as the basis for a formal order.

Many intricate problems remained to be solved after

the general principle and the line of action had been determined. Car-service experts from the railroads and traffic men from the coal industry were called in to work out these complex questions. The subcommittee of experts, headed by D. E. Spangler, Car Service Commission, and A. G. Gutheim for the roads, and by Mr. Morrow and John Callahan for the National Coal Association, and assisted by Herman Griggs, the directing head and manager of the Lake Erie Ore and Coal Exchange, and W. H. Groverman, secretary of the Northwest Coal Dock Operators Association, spent Thursday in New York preparing a report for presentation to the main committee of railroad executives and coal operators on Friday, July 16.

Throughout the proceedings the representatives of the coal industry have taken the position that the present shortage is the direct result of lack of transportation, that the producers and shippers of bituminous coal have contracted to supply the requirements of consumers throughout the country and are ready and willing to meet these obligations if the railroads will but furnish the cars and transportation. Mr. Groverman testified, as he had the previous week in the hearings before the Interstate Commerce Commission that the dock operators have contracts with producers and shippers sufficient to cover their needs but that lack of cars has prevented the production and supply of this coal to the Lake front.

The first day's conference in New York City took place in the offices of Daniel Willard, president of the Baltimore & Ohio Railroad Co. The railroad representatives present in addition to Mr. Willard, who was chairman of the committee, were General W. W. Atterbury, Pennsylvania R.R.; C. H. Markham, Illinois Central; Hale Holten, of the Chicago, Burlington & Quincy; W. B. Storey, Atchison, Topeka & Santa Fé; B. F. Bush, Missouri Pacific; F. J. Pierson, New Haven system; Howard Elliott, Northern Pacific, and W. H. Truesdale, of the Delaware, Lackawanna & Western Railroad Co.

The operators' committee was headed by Colonel D. B. Wentz, of Philadelphia, president of the National Coal Association; and consisted of J. D. A. Morrow; Frank Wilshire; C. P. White, Cleveland; James F. Walsh, Pittsburgh; F. C. Honnold, Chicago, and J. G. Bradley, Dundon, W. Va.

The subcommittee consisted of D. E. Spangler, Car Service Commission; J. B. Fisher, C. W. Fiscus and J. E. Adrian, Pennsylvania Railroad Co.; John Callahan, Washington; C. P. White, Cleveland; E. D. Ballard, Chicago; W. H. Groverman, Minneapolis; J. R. Kearney, Car Service Commission; A. G. Gutheim, Car Service Commission; C. W. Hull, Chesapeake & Ohio R.R.; C. M. Sheafer, Pennsylvania R.R.; H. M. Griggs, Interstate Commerce Commission; J. D. A. Morrow; W. G. Curran, Baltimore & Ohio and F. W. Wilshire, Consolidation Coal Co.

Public Utilities Given Assigned Cars for Coal

Interstate Commerce Commission Issues Service Order No. 9, Extending For Thirty Days Priority on Open-Top Cars for Coal—Open-Top Cars Defined and 24-Hour Unloading Requirement Applied to All Freight

PROMPT action was taken by the Interstate Commerce Commission on the extension of Service Order No. 7 after the hearings as to the necessity for amendment were concluded on Saturday, July 10. These hearings, lasting three days, revealed the great importance of increasing car supply at the coal mines as well as the urgent need of public utilities for some measure of assistance in obtaining an adequate supply of coal. The new order, known as Service Order No. 9, was issued on Tuesday, July 13, while the coal operators were in Washington preparing to meet the executive committee of the American Railway Association with a program for taking care of the coal situation.

The first of four amendments to the original order defines open-top cars to which priority in use for coal loading shall apply. Flat-bottom gondola cars with sides less than thirty-six inches in height inside measurement, cars with racks, and cars which had on June 19, 1920, been definitely retired from service for the transportation of coal or allocated for other service are excluded from the provisions of the order. The second amendment extends the period during which the order shall be in effect to sixty days instead of thirty days from June 21, 1920.

The original order specified that coal must be unloaded from open-top cars within twenty-four hours, no mention being made regarding unloading of other freight from the same type of cars. The National Coal Association and the National Association of Retail Coal Merchants both pointed out the absurdity of this feature of Order No. 7 and requested the modification now granted in amendment number three that makes restrictions and penalties equal for all freight carried in open-top cars.

ASSIGNED CARS NOT FOR STORAGE COAL

The fourth amendment authorizes the assignment of cars for coal loading for current requirements of public utilities but not for storage. Ice plants, water and sewer works, hospitals, schools and other public institutions are included within the provisions of the order and may secure assigned cars, and thereby coal, by making written application to the originating carrier, concurred in by the delivering road. Cars so provided and loaded with coal are subject to but one reconsignment and that must be to another public utility or public institution, and then only in order that this plant may be kept in daily operation.

The order specifically states that assigned cars shall not be furnished for coal that is not needed for immediate and current consumption. No coal for storage can be acquired in this way. Just when coal in a pile is storage and when it is required for current use is not defined in the order and the question has arisen as to how much coal a plant may have before storage begins. At no plant is it considered feasible to operate with less than from two to seven days' coal on hand, and an amount approximating this quantity is really needed for current operation. It is quite possible that some rail-

roads will interpret the order so rigorously as to make it of little benefit to public utilities. Experience in distributing coal obtained by the Fuel Administration and by the Railroad Administration last winter shows that consumers have a propensity for calling for help before the help is really needed, and some railroad officials who may be called upon to concur in requests for assigned cars may be excused if they are a bit callous.

OPERATORS PLEASED WITH EXTENSION OF ORDER

Coal operators generally were pleased that the commission had decided to extend for thirty days the open-top car order, although they are opposed to the assignment of cars for any purpose. Public road interests have announced that they will continue to fight for cars for necessary repair work that must be completed before winter. They point out the apparent inconsistency of the Government in ascribing the present coal shortage to lack of rail transportation and then preventing the repair and extension of good roads over which thousands of motor trucks of the country could assist by hauling freight. The Public Service Commission of Pennsylvania on July 12 issued an order, directing the carriers to allocate to the Commonwealth certain box cars for use in transportation, the cars to be delivered at the cement works indicated and their number to be taken for the total number of box cars available and not charged against any class of consignors or against the allotment of any particular industry.

The commission has made an investigation of the supply of box cars for the transportation within the Commonwealth of cement required for the construction of public highways. In the course of construction of about one thousand miles of highway, estimated to cost approximately \$47,000,000, there have been many delays and in some places work entirely stopped by inability to secure box cars in which to transport cement from places of manufacture to points of construction. The result is that there are now two hundred places where roads are being constructed at which these main highways have been closed to traffic, and it will be necessary to keep them closed unless absolutely essential materials can be transported immediately and continuously until the work is finished.

CHAIRMAN CLARK OPPOSES RECONSIGNMENT

E. E. Clark, chairman of the Interstate Commerce Commission, addressed a letter to Daniel Willard as chairman of the advisory committee of the Association of Railway Executives, transmitting a copy of the order and calling attention to the fact that no action was taken by the commission looking toward providing a car supply for Lake coal, suggesting that such action would be deferred by the Government until after the coal operators and the railroad officials had first tried to work it out by themselves.

Mr. Clark pointed out the abuses of the reconsignment privilege and urged the railroads to amend their tariffs to prevent this practice as much as possible. Such vigorous support by the commission of the position

taken by the operators pleased officials of the coal association.

Mr. Clark's letter to Daniel Willard which follows has to do mainly with the subject of reconsignment. In explanation of the reference to Lake coal it may be stated that the commission has been inclined to grant assigned cars for this purpose and may yet do so.

Following the hearing which concluded Saturday, July 10, with respect to the coal-car situation in territory east of the Mississippi River, Division 5 of the commission has given earnest consideration to the facts disclosed of record and known to it as bearing upon the present emergency. Certain features of the situation seem to us to need clarification or correction of our Service Order No. 7. Accordingly Service Order No. 9 has been entered amending and supplementing Service Order No. 7 and effective forthwith. A copy of Service Order No. 9 is sent to you for your information.

It will be noted that no especial recognition is given to the Lake cargo situation. It is understood that this is the subject of detailed discussions among the coal operators themselves, to be followed immediately by a conference with various railroad executives, and that we will be advised as to the determinations reached. We have not thought it proper to attempt to deal with this situation by order until we know the result of such deliberations.

There is one feature of the situation as to which we entertain no doubt and which we desire to call to your attention on behalf of the carriers, which seems to us to require immediate and careful consideration with a view to action which will remedy abuses abundantly shown to exist. We refer to the provisions contained in tariffs of the carriers permitting the general or promiscuous reconsignment of cars under load with coal. As an emergency proposition it seems to us that the carriers should at once take steps to bring this practice down to the unavoidable minimum. We are not prepared to say that all reconsignment of coal should be prohibited; but it seems to us that it would be a very unusual situation in which more than one reconsignment should be permitted during the existing transportation emergency.

The privilege of reconsignment of coal is one which is carried in the tariffs of the carriers. Without discussing or deciding whether the commission has power under the emergency provisions of the Transportation Act to require the restriction or suspension of this privilege, with the myriad situations which exist in the country, it is obvious that the carriers should themselves bring forward promptly proposals to the commission for a suitable amendment to their tariffs on short notice in harmony with the views here expressed.

We will thank you if you will see that this is called to the attention of the carriers represented in your association.

Service Order No. 9, amending and supplementing Service Order No. 7, giving preference in the use of open-top cars to coal, was issued by the Interstate Commerce Commission on July 13. Order No. 9 in full is as follows:

It appearing in the opinion of the commission that because of a shortage of equipment and congestion of traffic, aggravated by unfavorable labor conditions which continue to exist upon the lines of each and all the common carriers by railroad subject to the Interstate Commerce Act within the territory east of the Mississippi River, and because of the inability of said common carriers properly and completely to serve the public in the transportation of coal, an emergency exists which requires immediate action:

It further appearing that as the result of a hearing recently had by the commission concerning the question whether any change or addition shall be made in the existing rules, regulations and practices of common carriers by railroad east of the Mississippi River, as to open-top cars or in Service Order No. 7 of the commission relative thereto made and entered June 19, 1920, the said Service Order No. 7 should be modified as hereinafter ordered.

It is ordered that said Service Order No. 7 shall be

amended and supplemented in the following respects, effective forthwith:

(1) By adding to the second paragraph thereof an additional proviso as follows:

"Provided, that the phrase 'coal cars' as used herein shall not include or embrace flat-bottom gondola cars with sides less than 36 inches in height, inside measurement, or cars equipped with racks, or cars which on June 19, 1920, had been definitely retired from service for the transportation of coal and stenciled or tagged for other service."

(2) That the words "for the period of thirty consecutive days beginning with June 21, 1920," in the fifth and sixth lines of the second paragraph of said Service Order No. 7 be amended so that the same shall read, "for the period of sixty consecutive days beginning with June 21, 1920;"

(3) That the fifth paragraph of said Service Order No. 7 be amended to read as follows:

"It is further ordered that all common carriers by railroad within the territory hereinbefore described be, and they are hereby, authorized and directed, until the further order of the commission, to place an embargo against the receipt of coal or other freight transported in open-top cars suitable for coal loading, as hereinbefore defined, by any consignee and against the placement of such open-top cars for consignment to any consignee who shall fail or refuse to unload such coal or other freight so transported in coal cars and placed for unloading within twenty-four hours after such placement, until all coal or other freight so transported in coal cars and so placed has been unloaded by such consignee, provided that this authorization and direction shall not interfere with the movement of coal under permit to any coal pool or pools when authorized by any order heretofore or hereafter entered by the commission or coal consigned to Tidewater or the Lakes for transshipment by water, nor shall it apply where the failure of the consignee to unload is due directly to errors or disabilities of the railroad in delivering cars."

(4) That following the fifth paragraph of said Service Order No. 7 shall be inserted an additional paragraph as follows:

"It is further ordered that until and including Aug. 19, 1920, all common carriers by railroad within said territory, to the extent that may be necessary in order that public utilities, including street and interurban railways, electric power and lighting plants, gas plants, ice plants, water and sewer works, also hospitals, schools and other public institutions, may be kept supplied with coal for current use but not for storage, be and they are hereby authorized to place, furnish and assign cars to coal mines for the transportation of such coal, in addition to and without regard to the existing ratings and distributive shares for mines upon said railroads; provided no cars shall be so placed, furnished or supplied by any such carrier without written application therefor from the public utility concurred in by the delivering railroad, showing that such coal is needed for current use, and not for storage, in order that the applicant may continue in daily operation, and provided further that such coal shall not be subject to reconsignment except to public utilities or public institutions, and that a written report of the cars placed hereunder shall be promptly made to the Interstate Commerce Commission by the railroad placing the cars."

And it is further ordered that copies of this order be served upon the carriers hereinbefore described, by the same carriers upon whom service has been made of Service Order No. 7, and that notice of this order be given to the general public by depositing a copy thereof in the office of the secretary of the commission at Washington, D. C.

In the issue of May 13, in an article describing the Mather Collieries, credit should have been given to the Sullivan Machinery Co. for the ten Sullivan Ironclad explosion-proof electric mining machines by which the coal is exclusively cut. A portable underground air compressor of the same make also is in use. Credit in the article in question was given to another manufacturer.

Coal Men Prepare for Publicity Campaign

TO SUPPLY the public with information about coal matters, as well as to combat much misinformation concerning the industry, the Wholesale Coal Trade Association of New York, Inc., is about to launch a publicity campaign. The plan is to include newspaper advertisements dealing briefly with the salient points on which the public should be informed, as the groundwork to a proper understanding of the difficult problems confronting the coal business.

Charges for Removing Overloads from Coal Cars

THERE has been considerable question as to the ability of the carriers to make a charge for removing overloads of coal from cars. Accordingly this matter was put up to the Interstate Commerce Commission some time ago by the National Coal Association, and the following self-explanatory letter has been received from Secretary McGinty of the commission:

Referring to your letter of April 14, with which you submitted copy of a circular issued by General Superintendent of Transportation Sheaffer of the Pennsylvania R.R., relative to a charge of 35c. per ton deducted by that company as a handling charge from the price paid for coal removed from overloaded cars:

This matter has received consideration, and it is the view of the commission that if the carrier is to make a charge for this handling service it should be provided for in the tariffs. It should be understood, however, that the fact that the charge is not now named in a tariff does not necessarily mean that a reasonable charge may not be made for service of this kind which has already been performed. In this connection attention is invited to the reports of the commission in *Memphis Freight Bureau vs. Kansas City Southern Ry.*, 17 I. C. C., 190; *Hampton Manufacturing Co. vs. O. D. S. S.*, 27 I. C. C., 666.

If you are of the opinion that the 35c. charge is unreasonable for the service performed you have the right to file formal complaint with the commission and secure a hearing on the question.

Petroleum Output During May Was Above Average

PRODUCTION of petroleum in the United States during May, according to a report issued by the U. S. Geological Survey, amounted to 36,859,000 barrels, a daily average of 1,189,000 barrels. This compares with the output during April of 36,201,000 barrels, but as there was one day less in that month, the daily average was slightly above that of May—1,206,700 barrels. March production totalled 36,461,000 barrels a daily average of 1,176,161 barrels.

For the five months January to May inclusive the total output was 176,713,000 barrels, a daily average of 1,162,586 barrels, compared with a total production during the corresponding months of 1919 of 146,711,000 barrels, a daily average of 971,596 barrels.

Stocks of petroleum held by pipe-line and other marketing companies on May 31, 1920, amounted to 124,633,000 barrels, compared with 124,991,000 barrels on April 30 and 125,597,000 barrels on March 31.

During May imports of petroleum totalled 6,695,571 barrels, compared with 6,186,384 barrels during April. Total imports for the five months January to May inclusive amounted to 30,889,012 barrels, compared with 19,796,398 barrels during the corresponding months of 1919.

Exports of crude petroleum during May amounted to

655,707 barrels, compared with 649,416 barrels during April. For the five months January to May, 1920, exports totalled 3,392,335 barrels, compared with 1,196,057 barrels during the corresponding months of the previous year.

Estimated total consumption of domestic and imported petroleum, including exports, during May amounted to 43,971,031 barrels, a daily average of 1,418,420 barrels. This compares with a total consumption during the corresponding month of 1919 of 35,141,000 barrels, a daily average of 1,133,581 barrels. During April, 1920, the total consumption amounted to 42,861,000 barrels, a daily average of 1,428,700 barrels, while for March, 1920, the total was 43,926,000 barrels, a daily average of 1,416,967 barrels.

British Comment on Our Export Trouble

UNDER the caption "Delivering the Goods" the *Journal of Commerce*, a Liverpool (England) publication, comments on the present predicament of the American exporters of coal, who have the business and the boats but not the coal. The editorial says:

"During the last week or two there has been a very severe slump in freights from the United States coal ports to European destinations, and possibly the worst in this respect has not yet been seen. The chief reason for the fall was the inability of shippers to find coal to fill the steamers chartered, and already there has sprung up a very big crop of claims for demurrage.

"There is plenty of coal in the States for export, but it is in the wrong place. In short Uncle Sam, having entered into the business of international coal merchant, now finds out that he has bitten off more than he can chew.

"It is certainly very unfortunate that the business has turned out so disastrous for all concerned, but results are about equal to the anticipations of the coal and shipping interests on this side."

The British writer thinks that England has plenty of coal but "unfortunately it cannot be mined quickly enough, thanks to the attitude of the Government-coddled miners, and thus the export trade is very seriously handicapped. The Board of Trade decision to limit coal exports is a confession of weakness, and certainly Great Britain cannot pay her way on the export of a paltry fifteen or twenty million tons of coal a year. Not only does a small coal export mean a big loss of trade, but the money usually earned in freights will soon begin to tell."

Hope is held out for the British exporter with predictions of industrial trouble if coal is not produced there in greater quantities. The writer encourages the trade with the statement that "even now it is not too late for the country to regain some part of its lost coal trade. Contracts placed with the States will be cancelled wholesale as soon as shippers start defaulting in real earnest, as they must do, and if the miners in this country put their backs into the task orders would soon flow back to this country again. Work must be found for the ships, and coal is the usual cargo for tramps outward bound for grain, wool or ore. Output is the essential factor in the situation, and this is greatly restricted. Already the country is face to face with the danger of a big shutdown in the engineering and allied trades, and if this eventuates while the country's export of coal is cut down to next to nothing there will be hard times for the working classes next winter."

Operators Make Full Reply to the Allegations of United Mine Workers Especially as to Wages and Working Time

Exhibit of Anthracite Operators to U. S. Anthracite Coal Commission
Shows That in Period from 1917 to 1919 Anthracite Men Worked
22 Per Cent More Days Than Employees at
Bituminous Mines

On March 9, 1920, at a joint conference of miners and operators held in New York, preparatory to the expiration of the four-year agreement which terminated March 31, 1920, the miners presented sixteen demands as the basis of a new contract. The parties in interest appointed four representatives on each side to constitute a negotiating committee to consider these demands and report back to the joint conference any agreement they might be able to reach. The members of this committee were the following: For the miners—John L. Lewis or Philip Murray, John T. Dempsey, Thomas Kennedy, Chris J. Golden and for the operators S. D. Warriner, W. J. Richards, W. L. Connell, C. F. Huber.

After eight weeks of negotiation in New York City, and after careful examination of the facts and figures presented, the operators felt that there was little justification for any increase. Nevertheless, in view of the existing unrest, as insurance against further increase in the cost of living within the period of the contract, and in compromise of existing differences, they offered an increase of 15 per cent to be applied as follows:

OPERATORS' OFFER TO MINERS

(a) The contract rates at each colliery shall be increased 60 per cent over and above the contract rates at each colliery, effective April, 1916, as established by the agreement of May 5, 1916.

(b) The day rates of outside company men receiving \$1.545 or more per day under the agreement of May 5, 1916, shall be increased 60 per cent, plus \$1.20 per day, or per shift, above the rates established in said agreement of May 5, 1916; it being understood that the increase thus made shall be not less than \$2.30 or more than \$2.80 per day or per shift.

(c) The day rates of inside company men receiving \$1.545 or more per day under the agreement of May 5, 1916, shall be increased 60 per cent, plus \$1.20 per day, or per shift, above the rates established in said agreement of May 5, 1916; it being understood that the increase thus made shall be not less than \$2.50 or more than \$2.80 per day or per shift.

(d) The rates paid consideration miners shall be increased 60 per cent, plus \$1.20 per day, above the rates established under the agreement of May 5, 1916; it being understood that the increase thus made shall be not more than \$2.80 per day.

(e) The rates paid contract miners' laborers and consideration miners' laborers shall be increased above the rates established under the agreement of May 5, 1916, to the same amount per day as the increase to company laborers, at the respective collieries, under the provisions of clause c hereof; it being understood that in the case of contract miners' laborers the miner is to assume and pay so much of said increase as shall be represented by the application of 60 per cent to the rate per basic shift as established under the agreement of May 5, 1916, and the difference between said amount and the total increase to the contract miners' laborers shall be assumed and paid by the operator.

(f) The day rates paid on machine mining shall be increased 60 per cent, plus \$1.20 per day, above the rates established under the agreement of May 5, 1916; it be-

ing understood that the increase thus made shall be not less than \$2.50 or more than \$2.80 per day.

(g) All employees paid by the day and receiving less than \$1.545 per day, or per shift, under the agreement of May 5, 1916, shall be paid an increase of \$1.50 per day, or per shift, over the rates paid under said agreement of May 5, 1916.

(h) Monthly men coming under the agreement of May 5, 1916, shall be paid an increase of 60 per cent, plus \$36 per month, over the monthly rates established in said agreement of May 5, 1916; it being understood that for outside employees the increase thus made shall be not less than \$69 or more than \$84 per month, and for inside employees not less than \$75 or more than \$84 per month.

(i) The employees of stripping contractors shall be paid an increase per day or per month corresponding in amount to the difference between the rates in effect March, 1920, and the rates established under this agreement for employees of the operators in similar occupations at the same colliery.

(j) The employees of tunnel contractors shall come within the terms of this agreement and the day rates of their employees shall be increased 60 per cent, plus \$1.20 per day, above the rates established under the agreement of May 5, 1916; it being understood that the increase thus made shall be not less than \$2.50 or more than \$2.80 per day.

(k) The increases herein provided shall become effective April 1, 1920, and where they apply to day rates are to be applied to a day of eight hours or more, as established under the agreement of May 5, 1916.

The miners rejected this proposition and the operators then offered, as an alternative, arbitration by three men, representative of the public, who were to be appointed by the President of the United States and to sit with the negotiating committee to decide matters in dispute. This offer also was rejected. As there was every evidence of a disagreement the Secretary of Labor invited the committee to appear before him in Washington in the hope that some ground might be found for an amicable adjustment of the matters in dispute. Both sides argued the case before the Secretary and were finally asked to accept the following as a basis of compromise:

PLAN OF SECRETARY WILSON

The terms and provisions of the award of the Anthracite Coal Strike Commission and subsequent agreements made in modification thereof or supplemental thereto, as well as the rulings and decisions of the Board of Conciliation, are hereby ratified, confirmed and continued for a further period of two years, ending March 31, 1922, except in the following particulars, to wit:

(a) The contract rates at each colliery shall be increased 65 per cent over and above the contract rates at each colliery, effective April, 1916, as established by the agreement of May 5, 1916.

(b) The day rates of outside and inside men receiving \$1.545 or more per day under the agreement of May 5, 1916, shall be increased 65 per cent, plus \$1.20 per day, or per shift, above the rates established in said agreement of May 5, 1916; it being understood that the new rate so established shall be not less than \$4 or more than \$6 per day or per shift.

(c) The day rates of employees receiving less than \$1.545 per day under the agreement of May 5, 1916, shall be increased \$1.50 per day, or per shift, above the rates established in said agreement of May 5, 1916.

(d) The rates paid contract miners' laborers and consideration miners' laborers shall be increased above the rates established under the agreement of May 5, 1916, to the same amount per day as the increase to company laborers, at the respective collieries, under the provisions of clause b hereof; it being understood that, in the case of contract miners' laborers, the miner is to assume and pay so much of said increase as shall be represented by the application of 65 per cent to the rate per basic shift as established under the agreement of May 5, 1916, and the difference between said amount and the total increase to the contract miners' laborers shall be assumed and paid by the operator.

(e) Monthly men coming under the agreement of May 5, 1916, shall be paid an increase of 65 per cent, plus \$36 per month, over the monthly rates established in said agreement of May 5, 1916; it being understood that the increase thus made shall be not less than \$20 or more than \$30 per calendar month over the rates now in effect.

(f) The employees of stripping contractors shall be paid an increase per day or per month corresponding in amount to the difference between the rates in effect March, 1920, and the rates established under this agreement for employees of the operators in similar occupations at the same colliery.

(g) The employees of tunnel contractors shall come within the terms of this agreement and the day rates of their employees shall be increased 65 per cent plus \$1.20 per day above the rates established under the agreement of May 5, 1916.

(h) The increases herein provided shall become effective April 1, 1920, and where they apply to day rates are to be applied to a day of eight hours or more, as established under the agreement of May 5, 1916.

It is understood and agreed that the case of inside pumpmen and inside and outside hoisting engineers, working a twelve-hour cross shift, shall be referred to the Board of Conciliation. The board shall work out a basis of eight-hour shifts and the rates to be paid for an eight-hour day. Pending the decision of the board inside pumpmen and inside and outside hoisting engineers working a twelve-hour cross shift shall continue on that basis and shall be paid the same increase as provided for day men under clause b hereof. When the rates to be paid for an eight-hour day have been established by the Board of Conciliation time in excess of eight hours per day shall be paid for at the rate per hour established for the eight-hour day.

It is further understood and agreed that the Board of Conciliation shall act as a commission to make a study of, and report to the joint conference at the expiration of this contract, the matter of uniformity in day rates for the several occupations of day men at the respective collieries in the anthracite field.

Contract miners whose tools are lost through no fault of their own as the result of squeezes, cave-ins, and similar accidents shall be furnished with new tools by the company, corresponding to the tools lost, without expense to the miner.

Whenever contract miners reporting for duty are shut out of work through no fault of their own they shall be given the opportunity of working in other places or at other work at the rate of wages established for such other places or such other work, if such other places or other work are available.

Whenever deficient or abnormal conditions are encountered in a working place by contract miners the miner or miners affected shall make such fact known to the foreman, and if the foreman and the men affected are unable to agree it shall be referred to the grievance committee and dealt with in the manner provided for other grievances. Work shall be continued pending the adjustment unless otherwise directed by the foreman, and whatever decision is made shall be retroactive to the date upon which the grievance was raised.

[This contract was to be signed by four representatives of the anthracite operators and by the presidents of districts Nos. 1, 7 and 9 and the president of the United Mine Workers of America on behalf of the "United Mine Workers of America," which is so designated in the instrument, also by the chairman and secretary of the conference as attestants.—Editor.]

OPERATORS ACCEPTED OFFER

The operators concurred, but the miners, through their scale committee, rejected the Secretary's recommendation. Thereupon the Secretary addressed a letter to the President, briefly outlining the situation, and stating that

the basis of compromise he had proposed, namely, \$4 per day to men who had received \$1.50 per day in 1914 and \$6 per day to men who had received \$3 per day in 1914, was as far as he could go and justify his position. In this letter he asked Presidential authority to say that there must be no cessation of work and that in case of final disagreement the matters at issue must be submitted to arbitration.

Upon receipt of an affirmative reply the Secretary referred the matter once more to the negotiating committee and the mine workers decided to refer the entire matter to a tri-district convention to be held in Wilkes-Barre. The convention endorsed the action of the scale committee in rejecting the Secretary's offer, and decided to refer the matters at issue to arbitration. Thereupon the President issued the following proclamation:

PRESIDENT'S PROCLAMATION

Whereas the wage scale of the anthracite coal operators and miners expired on March 31, 1920; and the operators' and miners' wage scale committee has been in conference since early in March in an effort to negotiate a new wage scale; and the committee agreed at the beginning of its sessions that any agreement finally arrived at would become retroactive to the first of April, 1920; and I addressed a communication to the scale committee on May 21, 1920, when a disagreement was imminent, in which I said that if the scale committee was unable to reach an agreement I would "insist that the matters in dispute be submitted to the determination of a commission to be appointed by me, the award of the commission to be retroactive to April 1, in accordance with the arrangement you have already entered into, and that work be continued at the mines pending the decision of the commission. I shall hold myself in readiness to appoint a commission similarly constituted to the one I recently appointed in connection with the bituminous coal mining industry as soon as I learn that both sides have signified their willingness to continue at work and abide by its decisions," and whereas the scale committee has further agreed as follows:

"(1) The terms and provisions of the award of the Anthracite Coal Strike Commission and subsequent agreements made in modification thereof or supplemental thereto, as well as the rulings and decisions of the Board of Conciliation, will be ratified and continued, excepting in so far as they may be changed by the award of the commission.

"(2) When the award of the commission is made it will be written into an agreement between the anthracite operators and miners in such manner as the commission may determine.

"(3) It is understood that neither operators nor miners are in any manner bound by any tentative suggestions that have been made during the period of their negotiations and that either side shall use its own discretion in the presentation of its case in connection with matters at issue";

Now therefore, I, Woodrow Wilson, President of the United States, hereby appoint William O. Thompson, of Columbus, Ohio; Neal J. Ferry, of McAdoo, Pa., and William L. Connell, of Scranton, Pa., a commission to hear and decide the questions in dispute between the anthracite coal operators and miners. Its report will be made within sixty days if possible, will be retroactive to April 1, 1920, and will be made the basis of a new wage agreement between the anthracite operators and miners in such manner as the commission may determine.

In witness whereof I have hereunto set my hand and caused the seal of the United States to be affixed. Done in the District of Columbia, June 3, 1920, etc.

MURRAY LISTS MAJOR DEMANDS

In his opening address Mr. Murray stated that of the eighteen demands made by the mine workers there were four of major importance, to wit:

(1) Eight hour day for those occupations which are based on a longer workday, such as engineers, pumpmen, stablemen, etc.

(2) Standardization of rates of pay for the same work throughout the field.

(3) The same increases in rates of pay as were granted to soft-coal mine workers by the President's Bituminous Coal Commission by its award of March 19, 1920. This demand involves the following increases:

(a) The establishment for all adult male workers who are now receiving less than \$5 a day a rate of \$6 per day.

(b) An increase of \$1 per day to all adult male workers who are now being paid \$5 or more than \$5 a day.

(c) Workers paid on a monthly basis to receive an increase proportionate to their rate per day computed on the basis of the number of days worked per month.

(d) Boys who are now receiving less than men's wages to be advanced 53c. per day.

(4) Formal recognition of the United Mine Workers of America, the award of this commission to be written into an agreement to be signed by representatives of the operators and of the United Mine Workers of America.

CONSTITUTES NEW DEMAND

The foregoing explanation constitutes an entirely new interpretation of the wage demand and involves an increase greatly in excess of any claim heretofore made. It is intimated that if this demand is granted the same increases will be awarded to the anthracite workers as were awarded to the bituminous workers by the President's Bituminous Commission. Its award reads as follows:

(f) That all day labor and monthly men (the advance to monthly men to be based on an average of the usual number of days he is required to work in a month), except trappers and other boys, be advanced \$1 per day. Trappers and boys receiving less than men's wages to be advanced 53c. per day.

This award did not establish a \$6 per day minimum in the bituminous field, as claimed. Mr. Murray later tried to explain this inaccuracy, but it was done in a way that left the meaning quite obscure. Furthermore, in this explanation he makes the unqualified statement that \$6 per day is "the minimum day rate in the bituminous coal-mining areas." The operators challenge this statement as inaccurate and not in accord with the facts.

DEMANDS ARE NOW GROWING

The demands presented by the miners to this commission embody in substance what was presented to the joint conference, except that the original demand for a 60 per cent increase in the contract wage scales and a \$2 per day increase to day men has been modified to read, "an increase to correspond to the increases granted the bituminous mine workers by the Presidential Coal Commission." Also, the demand for a 6-hour day and a 5-day week has been modified to read, "that the 8-hour day be extended to all classes of inside and outside day labor and monthly men."

When in the conferences of the negotiating committee the wage demand was modified to an increase to correspond to that granted the bituminous workers by the Presidential Coal Commission the mine workers then stated that it contemplated an increase of 27 per cent to contract miners and \$1 per day to day workers. This commission has now before it identically the same demand, written in exactly the same words, but with a new interpretation—namely, that it means an increase of

31 per cent to contract miners and a minimum rate of \$6 per day to day workers. The operators again challenge the accuracy of this interpretation of the bituminous award.

FOUR TIMES PRE-WAR RATES

It is quite pertinent to ask that the commission inquire most carefully into the supporting data for a demand that has been subject to so many changes and to such varied interpretations. The establishment of a minimum rate of \$6 per day to day workers would give common labor an increase of approximately 75 per cent over the rates now in effect and nearly 300 per cent over the pre-war rates. It would give to labor of this class practically the same rate as is now being paid to the highest skilled labor in industrial establishments in the eastern portion of the United States.

The lowest day rate for adult labor is now \$3.35 per day. The mine workers propose that this labor shall be increased to \$6 per day, an increase of 80 per cent over its present rate and 300 per cent over its pre-war rate of \$1.50 per day. They likewise propose that day labor now receiving \$5 per day shall be increased \$1 per day, making the new rate \$6 per day, an increase of 20 per cent over present rates and 106 per cent over the pre-war rate.

As \$3.35 and \$5 represent generally the minimum and maximum rates paid to day labor it follows that under the scale they propose practically all day workers would receive \$6 per day. In a word, the existing differentials that have been established as a reward for greater skill and efficiency are to be entirely wiped out and everyone is to receive the same, irrespective of the character of the employment.

We cannot conceive that any plan embodying the principle of equal pay to all classes of day labor, regardless of skill and training, will give satisfaction to our employees or will receive serious consideration on the part of this commission.

In this reply the operators will confine their discussion to the eighteen demands as drafted by the tri-district convention, as presented by Mr. Murray, and as explained by Messrs. Dempsey, Kennedy and Golden. The effort will be to give this commission only essential facts bearing on these particular demands, which are the only matters before the commission for its consideration and decision.

DEMAND No. 1

We demand that the next contract be for a period not exceeding two years and that the making of individual agreements and contracts in the mining of coal shall be prohibited.

So far as the term of the contract is concerned the operators agree to a two-year period. As to the abrogation of individual contracts in the mining

of coal, the same demand was made by the mine workers in 1912 and adjusted by the following clause in the agreement of May 20, 1912:

(c) There shall be an equitable division of mine cars, as set forth in the award of the Anthracite Coal Strike Commission and the decisions of the Conciliation Board; and further, the rates paid by any contract miner to his employees shall not be less than the standard rate for that particular class of work.

Under this agreement the miners are amply protected against discrimination both in the distribution of cars and in the rates of pay. At the same time the operator may exercise full authority as to mining methods which in his judgment are necessary to provide for the safety of the employees and to secure efficiency in production. The argument of the mine workers can be interpreted only as indicating a determination to limit the opportunity and earning capacity of the individual.

CONTRACT IS NO EXPLOITATION

The practice of contracting a section of a vein, or a particular opening, to one man, who in turn employs his help, is a practice that has been in effect for a great many years. It has particular merit where the conditions involve removal of pillar coal or other conditions of mining not common to the average seam and where exceptional skill and supervision are required. The contention of the miners is that one man benefits by the labor of others and that the men employed earn less than if employed on separate contracts.

To this the operators reply that the condition that obtains is no different from that of a contractor in any other industry employing a number of men and that the men employed by the contractor can secure individual contracts in other sections if they so desire. The fact is that many men prefer to work at a fixed rate per day instead of a contract, or piece-work basis, and that it has always been possible to find men anxious and willing to work for contractors at the rates established and paid.

The argument that "the worker is being exploited," that the mine workers demand "equal rights to all and special privileges to none," is simply rhetoric. The workers are not exploited any more than any man working for another is exploited. Under the agreement of 1912 they are paid rates not below the established colliery scale, and in many instances the rates paid are higher than the colliery scale. They are not compelled to work for a contractor but do so of their own free choice and for reasons already indicated. Under the circumstances there is no sound argument for abrogation of a system of mining that has been in effect a great many years and which has resulted in promoting safety, efficiency and maximum production under the conditions to which the system is applied.

DEMAND NO. 2

We demand that the present wages of the anthracite mine workers be increased to correspond to the increases granted the bituminous mine workers by the Presidential Coal Commission.

The demand to make an increase in wages to correspond to the increase granted bituminous workers must be considered in the light of conditions in the two industries. For if conditions differ then this demand is based on a false premise and a scale of wages thus established would be manifestly unfair.

The conditions of, and the opportunity for, employment differ so widely in the two industries that one is not comparable with the other. Anthracite is not only mined, but after it is mined passes through a breaker where it is screened into nine sizes, passed to jigs or mechanical separators for removal of refuse, and is then loaded for market. The underground operation of an anthracite mine requires vastly more maintenance, pumping, etc., than a bituminous mine. As a result of this situation only about one-third of the men employed in the anthracite industry are engaged in cutting and loading coal, while in the bituminous industry two-thirds of the total are thus employed.

In the matter of working time or opportunity for employment the two industries have been gradually drifting apart until today the anthracite is on practically a full-time basis, as compared to 200 days per year in the bituminous.

ANTHRACITE PAYS BIGGER WAGES

It follows that neither in conditions of employment nor in opportunity for work are the two industries analogous, and there is therefore no sound reason why an advance awarded the bituminous worker should constitute a basis for adjustment of wages in the anthracite field. The anthracite industry is quite willing to compare the annual earning capacity of its employees with the earnings of those employed in the bituminous industry, for it will be shown that the anthracite worker, under present wage scales, is earning more per annum than the bituminous worker with the increase granted by the President's commission.

The question as to whether rates in the anthracite industry are fair and equitable must be determined with full appreciation of the following elements: (1) Opportunity for continuous employment; (2) Annual earning capacity; (3) Increase in annual earning capacity, 1914 to 1919, as compared to the increase in cost of living; (4) Daily wage; (5) Comparison of rates in effect with rates paid in occupations requiring like skill in other industries.

MUST HAVE CHANCE TO EARN

To the worker a daily rate has little significance unless he be given the opportunity to earn it. The present condition in the bituminous industry furnishes a striking illustration. It has been well depicted by Commissioner Colver of the Federal Trade Commission in a statement made on June 29, in which he said:

The coal mines are being allotted only 15 per cent of the cars which are needed. Coal miners who nominally receive a wage so high as to seem unheard of, are able to work only one day a week and see their families go hungry.

With reference to the opportunity for continuous employment Table I is submitted, showing days worked in the anthracite field and the bituminous field in the past ten years:

TABLE I. DAYS WORKED IN ANTHRACITE AND BITUMINOUS FIELD

Year	Anthracite 9-Hr. Days	Anthracite Equivalent 8-Hr.	Central Competitive Field	Bituminous All Fields of United States
1910	299	258	219	217
1911	248	277	210	211
1912	231	260	224	223
1913	257	289	233	232
1914	245	276	184	195
1915	230	259	198	203
1916	...	*263	228	230
		Av. 269	Av. 214	Av. 216
1917	...	285	244	243
1918	...	293	250	249
1919	...	273	201	201
		Av. 284	Av. 232	Av. 231

* 9-hour day January to April; 8-hour day May to December.

† Estimated—report of President's Bituminous Commission gives 193 days.

From the foregoing it will be noted that on a basis of equivalent hours per day the working time in the anthracite field in the period 1910 to 1916 was 55 days, or 25 per cent, more than the Central Competitive field and the same percentage more than the bituminous fields of the country as a whole; and that in the period 1917 to 1919 it was 52 days, or 22 per cent, more than the Central Competitive Field and the same percentage more than the bituminous fields as a whole. It will therefore be noted that war conditions made little change in the relative situation. But taking the post-war condition, namely, 1919, the figures show that the anthracite mines have worked 72 days, or 36 per cent, more than the bituminous.

NOW ON FULL-TIME PRODUCTION

It is therefore clearly apparent that the anthracite industry is on a basis of full-time production. There has been much argument on the part of the anthracite workers that this was not the case, that the conditions that obtained in the past few years were abnormal and that there would be a return to pre-war conditions, with a material reduction in working time.

It is to be assumed that the demand will be as great in the years to come as in years gone by, plus an increase which is bound to ensue with the normal growth in population. Therefore if it is a fact that the production of domestic sizes per annum has shown little increase in the period 1916 to 1919 as compared to the period 1912 to 1915 it must follow that supply has only met demand and that the working time necessary to produce the tonnage in the past few years reflected a normal, and not an abnormal, condition. The situation is reflected in Table II, showing domestic and steam sizes in the period named.

From the following it will be noted that the production of prepared and pea sizes has increased only 3.8 per cent in the four years 1916 to 1919, as compared to the period 1912 to 1915, or an increase of less than 1 per cent per annum.

TABLE II. SIZES OF ANTHRACITE SHIPPED

Year	Prepared and Pea, Tons	Steam Sizes, Tons
1912	45,678,201	17,932,377
1913	50,594,305	18,475,323
1914	49,998,507	18,344,094
1915	48,944,747	18,939,029
Avg.	48,803,940	
1916	48,245,724	19,130,640
1917	53,487,277	23,646,028
1918	51,974,714	24,675,204
1919	48,991,572	17,863,739
Avg.	50,674,822	

In the coal year from April 1, 1919, to March 31, 1920, the anthracite industry offered steady employment and no time was lost except that lost voluntarily by the employee or because of some interference with operation beyond the producers' control. Car shortage and no market were not factors in the situation, for there was practically a 100-per cent car supply and there was a market for every ton of coal that could be produced.

PREPARED SIZES THE TEST

The anthracite industry has always predicted its working time on the market for prepared sizes. The steam sizes have never been a factor in determining days worked, for if the market would not absorb the total production of these sizes the excess was stocked either at the collieries or in the storage yards. This is an important factor in consideration of the issues before us, for if the production of prepared sizes, with the mines working every day, will give only the necessary tonnage to meet the country's needs, then the anthracite industry is on a full-time basis.

The average annual production of prepared sizes in the four years 1912 to 1915 was 48,803,940 tons. In the year 1919, with 273 working days, the production was 48,991,572 tons. It will therefore be noted that production has not increased and that with a proper allowance for increased population and increased demand, it will be necessary to work more than 273 days in 1920; in fact, in the light of the experience of the past coal year, it will be necessary to have full-time operation to supply the demand, for there was a market for all coal that could be produced in the coal year ending March 31, 1920.

HOW WORK-DAY ERROR AROSE

The mine workers have offered certain exhibits purporting to show days worked, opportunity for employment, earnings of anthracite employees, etc., in which appear certain tabulations and conclusions. The attention of the commission is directed to the fact that in all of these exhibits the working time for the year 1919 is given as 252 days. This was one of the first points in controversy during the negotiations, and the mine workers then stated that this figure had been obtained from a statement of G. O. Smith, director of the United States Geological Survey.

As the figures of the large operating companies, producing about 80 per cent of the total anthracite tonnage, showed 281 starts and 273 eight-hour days of breaker operation the operators in-

quired of the Survey in what manner it had arrived at 252 days as the working time in the anthracite field in 1919. In reply E. W. Parker, director of Bureau of Information, received the following from F. G. Tryon, acting in charge of coal and coke statistics, Division of Mineral Resources, U. S. Geological Survey, March 18, 1920:

For the purpose of incidental comparison with the figures presented for the bituminous mines in the paper delivered by the director at the February meeting of the American Institute of Mining Engineers, an estimate of 252 days worked in 1919 was used for anthracite mining. The method by which this estimate was obtained is as follows:

In the absence of changes in the number of men or of the productivity per man per day, the number of days worked in 1919 should bear the same relation to the number of days worked in 1918 as the figures of total production for the two years. The proportion might be stated 98,826,000 tons in 1918 is to 86,200,000 tons in 1919 as 293 days is to 256 days. Comparing the years 1917 and 1919, the figures of days worked for the latter year would be 247. The two estimates thus obtained—256 days and 247 days—were averaged and the result, 252 days, was accepted as a rough measure of the days worked in 1919.

As pointed out by you, any significant change in either the number of men employed or the average productivity per man per day would invalidate this estimate. If you are in possession of actual returns you will be much better able to arrive at a

TABLE III. AVERAGE ANNUAL EARNINGS OF ANTHRACITE EMPLOYEES WORKING THROUGHOUT THE YEAR 1919 COMPARED WITH EARNINGS IN THE SAME OCCUPATIONS IN THE YEAR 1914

	Earnings Year 1914	Earnings Year 1919	P. C. Inc. Over 1914	No. of Men
Contract miners.....	\$820	\$1,719	109.6	13,467
Inside day men:				
Blacksmiths.....	737	1,565	112.3	55
Bratticemen.....	667	1,342	101.2	477
Carpenters.....	754	1,577	109.2	38
Culm-men.....	807	1,520	88.4	55
Drivers.....	493	1,157	134.7	897
Engineers—Locomotive.....	724	1,471	103.2	666
Engineers—Slope.....	671	1,384	106.3	338
Headmen and footmen.....	601	1,380	129.6	754
Machinists.....	880	1,699	93.1	49
Masons.....	645	1,281	98.6	136
Company miners.....	698	1,365	95.6	1,061
Company laborers.....	549	1,259	129.3	3,673
Pipemen.....	795	1,539	93.6	26
Pulleymen.....	646	1,339	107.3	36
Pumpmen.....	829	1,727	108.3	467
Car runners.....	543	1,219	124.5	647
Shaftmen.....	971	1,683	73.3	42
Stablemen.....	779	1,557	99.9	117
Timbermen.....	601	1,379	129.5	295
Tracklayers.....	671	1,398	108.3	612
Average.....	\$615	\$1,334	116.9	10,441
Outside day men:				
Blacksmiths.....	818	\$1,667	103.8	269
Carpenters.....	761	1,595	109.6	943
Engineers—shaft.....	964	1,760	82.6	491
Engineers—tower.....	871	1,673	92.1	12
Engineers—slope.....	797	1,575	97.6	414
Engineers—power house.....	907	1,645	81.4	96
Engineers—breaker.....	830	1,654	99.3	96
Engineers—fan.....	724	1,557	115.1	120
Engineers—locomotive.....	821	1,636	99.3	243
Firemen.....	719	1,511	110.2	1,049
Headmen and footmen.....	546	1,267	132.1	375
Laborers.....	524	1,264	141.2	4,467
Loaders.....	543	1,226	125.8	478
Machinists.....	851	1,679	97.3	387
Pumpmen.....	729	1,579	116.6	45
Stablemen.....	757	1,494	97.4	91
Teamsters.....	588	1,398	137.8	148
Timber cutters.....	527	1,264	139.8	236
Track layers.....	666	1,354	103.3	114
Average.....	\$643	\$1,409	119.1	10,074
Average all occupations.....	\$705	\$1,509	114.0	33,982

TABLE IV. BREAKER STARTS AND DAYS WORKED DURING YEAR 1919 AT OPERATIONS PRODUCING EIGHTY-EIGHT PER CENT OF THE TOTAL ANTHRACITE TONNAGE

(This table does not rightly belong to this exhibit being Operators' Exhibit 2)

	Number of Collieries	Avg. Breaker Starts	Average 8-hour Days Breaker Operation
Hudson Coal Co.....	14	286	290.2
Hillside Coal & Iron Co.....	4	292	286.5
Pennsylvania Coal Co.....	10	287	289.4
Scranton Coal Co.....	8	290	247.7
Delaware, Lackawanna & Western R.R. Co.....	18	278	274.7
Lehigh Valley Coal Co.....	19	280	264.0
Lehigh & Wilkes-Barre Coal Co.....	11	277	271.0
Lehigh Coal & Navigation Co.....	6	271	271.0
Philadelphia & Reading Coal & Iron Co.....	31	279	278.5
Susquehanna Collieries Co.....	13	279	276.3
Temple Coal Co.....	6	266	212.1
Racket Brook Coal Co.....	1	274	271.3
Cranberry Creek Coal Co.....	1	273	271.3
Midvalley Coal Co.....	1	273	272.0
Darkwater Coal Co.....	1	277	275.3
Buck Run Coal Co.....	1	278	271.8
Madeira, Hill & Co.....	6	270	263.0
Trevorton Colliery Co.....	1	279	276.0
Locust Mountain Coal Co.....	1	275	279.9
Buck Ridge Coal Mining Co.....	1	279	276.3
Estate A. S. Van Winkle.....	1	303	283.9
G. B. Markle Co., Inc.....	4	299	297.4
Peoples Coal Co.....	1	282	282.0
George F. Lee Coal Co.....	1	277	277.4
Kingston Coal Co.....	3	283	282.1
C. M. Dodson & Co.....	1	276	265.3
Pardee Bros. & Co.....	1	272	269.9
Totals.....	166	279	273.1

temporary conclusion than is the Geological Survey at the present time.

It will be noted that 252 days was simply an estimate, theoretically deduced from certain factors; and it will further be noted that the method employed failed to take into account the fact that the years 1917 and 1918 included a large tonnage from culm banks, whereas there was comparatively little culm-bank tonnage in 1919. The result was that the computation produced a result entirely at variance with the facts.

KNEW FIGURE WAS CONTESTED

All of the foregoing was made a matter of record during the negotiations. Yet Mr. Lauck presents to the consideration of this commission exhibits showing days worked, earnings of anthracite workers, etc., in which the erroneous figure of 252 days is one of the controlling factors and exerts a most vital influence in the results shown and the conclusions drawn therefrom.

In the matter of annual earning capacity the operators have summarized in Table III from the payrolls of nine companies, producing about 75 per cent of the total anthracite output, the earnings of all employees whose names appeared in each semi-monthly pay period in the years 1914 and 1919, classified as to occupations. The figures shown represent the actual amount received, on the average, by the employee in each occupation in each year, and in the case of contract miners the amount received after deduction for powder and other supplies purchased from the operator and used in the conduct of the work.

TABLE V. GROWTH OF BANK DEPOSITS IN ANTHRACITE COAL FIELDS OF PENNSYLVANIA
YEARS 1916-1920

	No. of Banks	Savings Deposits, Jan. 1, 1916	Savings Deposits, Jan. 1, 1920	Increase Over 1916	Per Cent
Hazleton Region.....	9	\$9,754,678.84	\$15,173,598.79	\$5,418,919.95	56
Lykens Region.....	7	946,825.95	1,638,622.87	691,796.92	73
Wilkes-Barre City.....	12	20,176,449.19	27,341,979.11	7,165,529.92	36
Wyo. Val. Local Towns.....	16	14,590,880.21	23,453,450.51	8,862,570.30	61
Scranton City.....	18	32,632,874.71	42,127,999.63	9,495,124.92	29
Lacka. Val. Local Towns.....	18	11,181,143.20	16,938,734.77	5,757,591.57	51
Southern Field.....	28	10,324,955.98	17,653,327.19	7,328,371.21	71
Western Field.....	22	9,240,445.29	17,157,102.22	7,916,656.93	86
Grand totals.....	130	\$108,848,253.37	\$161,484,815.09	\$52,636,561.72	48

From Table III it will be noted that the average annual earning capacity of adult employees in the industry was \$1,509 per annum, or an increase of 114 per cent over the year 1914, and that in very few occupations has the increase been less than 95 per cent which the miners have so forcibly contended throughout our negotiations represents the increase in the cost of living within the five year period.

In fact, the figures show that not only have increased earnings compensated for the increase in the cost of living but there has been an increased opportunity to save, as evidenced by the savings deposits of the several banks in the anthracite field. From data collected by the Luzerne County National Bank, of Wilkes-Barre, Table V is submitted.

The operators contend that average earnings of \$1,509 per annum compare favorably with the average annual earnings of employees in other basic industries. The contention of the mine workers is that, in order to secure these annual earnings it has been necessary that men work every day and overtime on some days, and that the figures submitted indicate that this has been the condition.

While it may be true that in some occupations the earnings indicate full time and overtime on the basic 8-hour day, the fact remains that in practically no case do the earnings show overtime of more than one hour per day, on the average, for full-time work. The fact that the men have been able to secure this steady employment is the best evidence of the opportunity that the industry affords.

In the matter of increase in the cost of living the mine workers have presented an exhibit which shows that according to the U. S. Bureau of Statistics the cost of living in December, 1919, exceeded that in December, 1914, by 95 per cent and the cost of living in May, 1920, exceeded that in December, 1914, by 104 per cent. It also declares that according to the National Industrial Conference Board the cost of living in March, 1920, exceeded that in June, 1915, by 94.8 per cent and the cost of living in April, 1920, exceeded that in June, 1915, by 96.6 per cent. Another statement presented is that, according to the Massachusetts Commission on the Necessaries of Life, the cost of living from December, 1914, to April, 1920, rose 92.3 per cent.

In the negotiations the mine workers contended that the increase in the cost

of living was 95 per cent as compared to 1914 and that the wage demand was largely predicated on this increase. They now argue that the increase is 104 per cent, and it is interesting to note the basis of this claim. On page 5, Exhibit 8, referring to the 95 per cent and 104 per cent increase shown in the table and purporting to be statistics compiled by the U. S. Bureau of Labor appears the following footnote:

(1) Estimates: increase between December, 1919, and May, 1920, being estimated as 5 per cent from price increases shown in later sections.

It will thus be seen that the 104 per cent is based on no actual study but is an estimate which the footnote says is based on price increases shown later in Exhibit 8. No method by which this estimate is obtained is furnished and even if it were the operators cannot see any justification for drawing general conclusions from such insufficient and hypothetical data.

The latest authoritative data we have been able to find on the subject of the cost of living is that prepared by the National Industrial Conference Board in its Research Report 28, May 1920, in which appears Table VI.

These figures are averages for the country as a whole and in applying them to any specific community, local conditions should always be taken into account. Unless, however, local conditions are very unusual, as, for example, where there have been very large or very small rent increases or where prices of the other items have increased much more or much less than the average allowed, it will be found that the cost of living advanced approximately 95 per cent between July, 1914, and March, 1920.

It is interesting to note that at the time of the last wage adjustment in the anthracite field in November, 1918, the increase in the cost of living was 65 per cent and in March, 1920, it was 94.8 per cent over 1914. By dividing the index number 165 into the difference between the increase of 65 per cent in November, 1918, and the increase of

94.8 per cent in March, 1920, it is found that the increase in March, 1920, was 18 per cent over November, 1918. However, in November, 1918, wages were adjusted to a basis far in excess of the increase in the cost of living at that time, and therefore the increase between November, 1918, and March, 1920, furnishes no sound argument for a further increase in wages in the anthracite industry.

Without prejudice to the contention that annual and not daily earnings should be the real criterion of whether wages are adequate or inadequate, there is set forth in Table VII a comparison of the daily rates of compensation in 1914 and 1919 and the relation of the increase in daily rate to a 95 per cent increase in the cost of living.

ARE COMPENSATED ALREADY

From Table VII, eliminating for the moment annual earnings and considering only daily rates, it will be noted that a 1.3 per cent increase on present rates would result in an increase of 95 per cent in the daily earnings of the contract miner as compared to 1914, and that an increase of 14.9 per cent to the highest-rate dayman would increase his daily earnings 95 per cent as compared to 1914, while in the case of the lowest-rate daymen the compensation is now 17.6 per cent inside and 12.7 per cent outside in excess of a 95 per cent increase in the cost of living. However, the average working time in 1914 was 245 9-hour days and in 1919 was 273 8-hour days. In the year 1916 the working day was changed from nine hours to eight hours and a slightly higher rate established for the 8-hour day. It follows, therefore, that the opportunity for work increased 11½ per cent, which practically compensated for any deficiency in rate to any class of employees when considered in terms of annual earning capacity.

Mr. Golden contended that the most that the highest-paid dayman in his district could have earned, working every day that the mines were in operation in 1919, was \$1,256.64, and the lowest rate man \$908.48. Apparently these results were obtained by multiplying 272 days by \$4.62 for the high-rate man and \$3.24 for the low-rate man. The statement is quite inaccurate and misleading, for there are many men in Mr. Golden's district receiving more than \$4.62 per day and there are

TABLE VI. PERCENTAGES OF INCREASE IN COST OF LIVING IN AVERAGE AMERICAN COMMUNITIES, BETWEEN JULY, 1914, AND MARCH, 1920, BY SEPARATE BUDGET ITEMS

(Table 7 of Research Report 28 of the National Industrial Conference Board) Percentages of Increase Between									
Budget Item	July, 1914, and July, 1915	July, 1914, and July, 1916	July, 1914, and July, 1917	July, 1914, and June, 1918	July, 1914, and Nov., 1918	July, 1914, and March, 1919	July, 1914, and July, 1919	July, 1914, and Nov., 1919	July, 1914, and March, 1920
Food.....	(b) 11	46	62	83	75	90	92	100	
Shelter.....	(b) 1.5	5	15	20	22	28	38	49	
Clothing.....	3	20	43	77	93	100	135	177	
Fuel, heat and light.....	2	4	26	35	40	42	48	49	
Sundries.....	(b) 4	17	50	55	55	63	75	83	
All items (a).....	0.5	8.7	31.3	52.2	65.0	68.5	72.2	82.2	94.8

(a) Weighted. (b) No change.

TABLE VII. TABULATION SHOWING INCREASE IN DAY WAGE RATE 1914-1919 AND COMPARISON OF INCREASE WITH A 95 PER CENT INCREASE IN THE COST OF LIVING

1914 Rate	1916 Rate	War Allowance	Present Rate	Per Cent Increase Present Rate Over 1914	Excess or Deficiency as Compared to 95% Increase in the Cost of Living	Excess or Deficiency in Percentage of Present Rate as Compared to 95% Increase in the Cost of Living
Contract Miner						
\$3.40	\$6.54	92.4	- 2.6	- 1.3
Outside Day Men						
\$1.50	\$1.55	\$1.80	\$3.35	123.3	28.3	12.7
1.60	1.65	1.80	3.45	115.6	20.6	9.6
1.70	1.75	1.80	3.55	108.8	13.8	6.6
1.80	1.85	1.80	3.65	102.8	7.8	3.8
1.90	1.96	1.80	3.76	97.9	2.9	1.5
2.00	2.06	1.80	3.86	93.0	- 2.0	- 1.0
2.10	2.16	1.80	3.96	88.6	- 6.4	- 3.4
2.20	2.27	1.80	4.07	85.0	-10.0	- 5.4
2.30	2.37	1.80	4.17	81.3	-13.7	- 7.6
2.40	2.47	2.00	4.47	86.2	- 8.8	- 4.7
2.50	2.58	2.00	4.58	83.2	-11.8	- 6.4
2.60	2.68	2.00	4.68	80.0	-15.0	- 8.5
2.70	2.78	2.00	4.78	77.0	-18.0	-10.2
2.80	2.88	2.00	4.88	74.3	-20.7	-11.9
2.90	2.99	2.00	4.99	72.1	-22.9	-13.5
3.00	3.09	2.00	5.09	69.7	-25.3	-14.9
Inside Day Men						
\$1.50	\$1.55	\$2.00	\$3.55	136.6	41.6	17.6
1.60	1.65	2.00	3.65	128.1	33.1	14.5
1.70	1.75	2.00	3.75	120.6	25.6	11.6
1.80	1.85	2.00	3.85	113.9	18.9	8.4
1.90	1.96	2.00	3.96	108.4	13.4	6.4
2.00	2.06	2.00	4.06	103.0	8.0	3.9
2.10	2.16	2.00	4.16	98.1	3.1	1.6
2.20	2.27	2.00	4.27	94.1	- 0.9	- 0.5
2.30	2.37	2.00	4.37	90.0	- 5.0	- 2.6
2.40	2.47	2.00	4.47	86.2	- 8.8	- 4.7
2.50	2.58	2.00	4.58	83.2	-11.8	- 6.4
2.60	2.68	2.00	4.68	80.0	-15.0	- 8.5
2.70	2.78	2.00	4.78	77.0	-18.0	-10.2
2.80	2.88	2.00	4.88	74.3	-20.7	-11.9
2.90	2.99	2.00	4.99	72.1	-22.9	-13.5
3.00	3.09	2.00	5.09	69.7	-25.3	-14.9
Boys						
\$0.90	\$0.93	\$1.20	\$2.13	136.7	41.7	17.6
1.00	1.03	1.20	2.23	123.0	28.0	12.5
1.10	1.13	1.20	2.33	111.8	16.8	7.9
1.20	1.24	1.20	2.44	103.3	8.3	4.1
1.30	1.34	1.20	2.54	95.4	0.4	0.2
1.40	1.44	1.20	2.64	88.6	- 6.4	- 3.4

comparatively few men receiving as little as \$3.34 per day. Furthermore, it is a fact that most of the day workers have the opportunity for some overtime on days the colliery is in operation or have the opportunity to work on days the colliery is idle. A mere computation of daily rate times an arbitrary number of days does not represent actual earning capacity. What the man really got in his pay envelope is clearly shown in the tabulation of annual earnings submitted herewith.

POWDER AND SUPPLIES

The mine workers have contended that the contract miner received an increase of 7 per cent on his contract rates in 1916 and a further increase of 40 per cent in 1918, or a total of 49.8 per cent over his 1914 rate, and that it was therefore illogical to credit him with an increase of 92.4 per cent (which the actual earnings show) unless the difference could be attributed to increased efficiency, and that unless a further increase was granted he would be penalized for his effort.

In answer the operators submit that the advance of 49.8 per cent was on the gross earnings, before deduction of powder and supplies; and that as the cost of powder and supplies was fixed by agreement at the pre-war price to

the miner the increase of 49.8 per cent was really an increase of 55 per cent on his net earnings or his rate per day. In addition the operators have found that there was an increase in opportunity within the day itself. This increase in opportunity can be attributed to the following general causes:

WHERE MINER HAS GAINED

- (1) The more extensive use of power in mining, thus increasing output per miner.
- (2) The more extensive use of power in transportation, thus improving car supply to miner.
- (3) The improvement in mechanical and electrical appliances, thus facilitating mining and increasing output per miner.
- (4) The improvement in mechanical appliances used in handling and preparation, thus reducing delays in operation.
- (5) The provision in the agreement of May 5, 1916, stipulating eight hours' work at the face.
- (6) Modification in contract rates and allowances paid over contract rates where conditions did not permit of satisfactory earning capacity.

The combined result of all the factors that have entered into the situation has been to increase the average daily earning capacity of the contract miner from \$3.40 per day in 1914 to \$6.54 per day in 1919—an increase of 92.4 per cent. Add to this the increase in working time and the actual increase in annual earnings was 109.6 per cent. These are the facts, arguments to the contrary notwithstanding, to be given full weight in reaching conclusions.

It is particularly indefensible to term the opportunity that has come to the contract miner to increase his daily earning capacity a penalization. The theory advanced is that the contract miner has worked harder and more efficiently, thus increasing his daily earnings and that by withholding a larger increase in rate, which would permit of still greater earnings, effort and efficiency are not given proper reward. The operators might well argue that the opportunity existed for the safe effort and efficiency in 1916 and if the miner did not take advantage of that opportunity, he was withholding that which was due both himself and his employer. The operators claim that the contract miner today is not earning what he could earn by working a full eight hours and refer the commission to the survey of the Department of Labor made in January, 1919 (Monthly Labor Review, Vol. IX, No. 6, Dec. 1919, p. 211), which shows the average working time of the contract miners covered by the survey as 6.8 hours per day, figured from the time they entered to the time they left the mine. The contract of May 5, 1916, at the time of the establishment of the eight-hour day, contained the following:

THIRD: An 8-hour day means eight hours of actual work for all classes of labor, at the usual working place, exclusive of noon-time, for six days per week, if the miner desires to work his mines to that extent, excepting only legal holidays. The time required in going to and coming from the place of employment in or about the mine shall not include any part of the day's labor.

One of the contentions of the mine workers has been that the wage of 1914 was inadequate and that an increase in excess of the increase in the cost of living should be granted to compensate for a deficiency in the base wage.

To this the operators reply that the wage in 1914, both as to the rates paid common labor and the differentials between common labor, semi-skilled, and skilled labor, were entirely commensurate with the rates paid in other basic industries and the cost of living at that time; and that therefore any increase in excess of the cost of living would be special preferment to bring one class above another, with its resultant effect on the entire labor situation.

In a word, it would place the anthracite industry at the peak of the spiral and other industries would be confronted with the request to advance wages once more and climb to meet the advance granted the anthracite workers. The inevitable result of such a situation would be that the worker would not benefit by the increase and that there would be a further increase in the cost of living.

Taking one more phase of the controversy and measuring wages in the anthracite industry with wages paid in other basic industries in the same territory and in adjoining territory where similar conditions of living and living costs obtain, the facts are as follows:

City of Scranton and Vicinity—A canvass of the situation in this terri-

tory, located in the northern end of the anthracite field, with industries such as the Scranton Bolt & Nut Co., Scranton Forging Co., Scranton Pump Works, Scranton Stove Works, Finch Manufacturing Co., Maccar Truck Co., Spencer Heater Co., National Metal Trades Association, Hendrick Manufacturing Co., Cross Engineering Co. and Carbondale Machine Co., shows the following rates generally paid to the different classes of labor indicated:

	Minimum per Hour, Cents	Maximum per Hour, Cents
Common labor.....	38	48
Semi-skilled labor.....	44	56
Skilled labor.....	54	80

The foregoing are rates paid following adjustments made in April, 1920, and they carry to April, 1921.

City of Wilkes-Barre and Vicinity—The rates paid by other industries, such as the Vulcan Iron Works, Sheldon Axle Works, Hazard Manufacturing Co., and by the Wilkes-Barre Railway Co., employing a total of more than 5,000 men, are as follows:

	Minimum per Hour, Cents	Maximum per Hour, Cents
Common labor.....	42	47
Semi-skilled labor.....	46	56
Skilled labor.....	52	80

The foregoing are rates paid following adjustments made in April, 1920, and they carry to April, 1921.

City of Hazleton and Vicinity—The rates paid by other industries, such as the Wilmot Engineering Co., Hazleton Drop Forging Co., Gross Manufacturing Co., Benjamin Iron & Steel Co., Duplan Silk Co., and by the Harwood Electric Co. and the Wilkes-Barre & Hazleton Railway Co., are as follows:

	Minimum per Hour, Cents	Maximum per Hour, Cents
Common labor.....	37	48
Semi-skilled labor.....	41	56
Skilled labor.....	53	78

Pottsville, Reading and Vicinity—The rates paid by other industries in this territory, particularly in the iron and cement industries, and employing large numbers of men are as follows:

	Minimum per Hour, Cents	Maximum per Hour, Cents
Common labor.....	37	47
Semi-skilled labor.....	44	57
Skilled labor.....	54	80

Allentown, Bethlehem and Vicinity—The rates paid by other industries in this territory, particularly the steel and cement industries, and employing large numbers of men are as follows:

	Minimum per Hour, Cents	Maximum per Hour, Cents
Common labor.....	35	45
Semi-skilled labor.....	50	60
Skilled labor.....	52	78

The industries above named employ thousands of men and are in direct competition with the anthracite mines for labor. In comparison with the rates paid by them, the anthracite industry is now paying:

	Outside Cents per Hour	Inside Cents per Hour
Common labor.....	42 to 46	48 to 54
Other day labor.....	48 to 64	56 to 68
Contract miners (average).....		82

OTHER INDUSTRIES PAY LESS

It will be noted that the rates paid common labor compare very favorably with the rates now paid in other industries. It will also be noted that if the lower rates paid other day labor are compared to rates paid semi-skilled labor in other industries and the higher rates paid other day labor are compared to a mean of the skilled rates in other industries (which is a proper basis of comparison) the relationship is at once apparent. Furthermore, if the rate paid contract miners is compared to the rate paid the highest skilled labor in other industries it will be found that the contract miner is receiving fully as much as machinists, blacksmiths, boiler-makers, etc., in first-class shop work.

In the light of the facts here presented the conclusion must be that rates now prevailing in the anthracite industry compare favorably with rates paid in other basic industries in the same section and with which the anthracite industry is in competition for labor, and that unless this fact be given proper weight in considering any change there is the probability of a most serious disturbance in the wage structure throughout the entire region in which the industry is located.

UNEQUAL TIME, UNEQUAL PAY

At various times during the conferences the mine workers have referred to the differences in day rates in the anthracite and bituminous fields for the same class of labor. The contention through the negotiations was that the lower rates obtaining in the anthracite field were in themselves a sufficient argument for an increase and that the least that should be considered was \$1 per day.

In answer the operators have referred to the entirely different conditions obtaining in the two industries, and have shown that an increase of the same magnitude as that given the bituminous worker was both unnecessary and unwarranted. They have pointed out the difference that has always existed in the rates of day labor in the two fields and that was always recognized in past wage agreements.

They have referred to the award of the Bituminous Commission and the arguments presented by the mine workers before that commission as the best evidence of a difference in conditions which demanded different treatment. They have contended that the award of the Bituminous Commission was predicated on lack of opportunity and that only on this theory could the advance granted, or the rates established thereunder, have been justified.

In support of this contention the following is quoted from the majority report of the Bituminous Commission, page 26:

At the present time America requires less than 500,000,000 tons of bituminous coal a year, while the capacity of the mines in operation is over 700,000,000 tons.

Under the stimulus of war demand many new mines were opened and many old ones expanded in order to secure sufficient coal to meet the exceptional and urgent national requirements. As a result the coal industry, which was speculatively overdeveloped before the war, is still more overdeveloped now and employs more capital and more labor than is necessary to supply the present needs of the country.

It is not to be expected that exports of coal will increase sufficiently to absorb a perceptible proportion of the gap between the demand for coal and the capacity of mines, as our shipping terminal facilities are such that not more than 25,000,000 tons of coal a year can at present be exported.

Full-time employment in the coal mines cannot, therefore, be expected until the industry is put on such a basis that only those mines remain in operation whose output is required to supply the annual needs of the country.

It must be apparent from the foregoing that the commission was influenced in its findings by the conditions that obtained, and that it found it necessary to establish daily rates which applied to five-sevenths working time, or a little over 200 days per year, would enable the employee to live with some degree of comfort during the full year of 365 days.

SOFT-COAL WAGE LOWER

Reference has been made in this exhibit to the comparative earnings of anthracite and bituminous workers. A tabulation has been given showing average earnings per annum of \$1,719 for contract miners, \$1,334 for inside daymen and \$1,409 for outside daymen—an average of \$1,509 for adult employees. Contrast these figures with those given by Mr. White in his minority report as a member of the President's Bituminous Commission and note the difference in favor of the anthracite workers.

Page 70. The proposed increase will bring the yearly earnings that may be expected up to an average of only \$1,200 to \$1,300 and a maximum of only \$1,600 to \$1,700.

Page 80. At rates prevailing in 1919 the actual annual earnings of pick miners in all bituminous mines were approximately \$1,130, according to the comprehensive study made by the U. S. Bureau of Labor Statistics and published in the December, 1919, Labor Review. According to exhibits submitted by the operators themselves the average annual earnings of pick miners and loaders in the northern Illinois district were, at 1918-19 rates, under \$1,000 a year. Furthermore, these same exhibits show that if conditions had been such as to permit these men to work every day when the mines were in operation in 1918 they would have been able to earn not over \$1,200 per year; that if conditions had been such as to permit these men to work every day when the mines were open in 1919, when conditions were worse, their annual earnings would have been less than \$1,000; and that in less than one-third of the companies shown in the exhibit were the average monthly earnings of all occupations listed as high as \$100, while in almost half the cases the average monthly earnings were below \$80.

MURRAY WANTS 31 PER CENT

Mr. White was formerly president of the United Mine Workers of America and was the representative of the mine workers on the Bituminous Commission. He was undoubtedly familiar with conditions and spoke with knowledge and authority. Yet, in the face of his statement, Mr. Murray informs your commission that it is necessary to increase contract rates 31 per cent and day workers \$1 to \$2.65 per day

in order to bring the earnings of anthracite workers to a parity with those in the bituminous industry.

Several exhibits have been presented at the hearings before this commission on "The Cost of Living," "A Living Wage," "A Sanction for a Living Wage," etc. The formal replies to these exhibits will be made in a separate paper or papers.

On the general proposition that every industry should pay its employees a living wage there is no difference of opinion. The practicability of establishing in any sort of concrete manner a standard of a living wage and its application to individuals in various classes of employment, and with different standards of living, is a controversial matter in which we take a position directly opposed to the other parties to this submission.

The anthracite operators contend that they have been and are paying living wages to their employees and that in all of the agreements made with the mine workers subsequent to the award of the Anthracite Coal Strike Commission due consideration has been given to conditions of living, the maintenance of health and comfort, and the general trend of wages in other industries, particularly those in the vicinity of the anthracite region.

EXCEED SUBSISTENCE WAGE

That the general policy of a living wage has been upheld in the region is attested by (1) the general business prosperity, which reflects the prosperity of the employees of the dominant industry; by (2) the financial status of the banks, particularly savings banks and banks having savings departments; by (3) the patronage given to amusements and the time taken for recreation; and by (4) the comfort in which all of the anthracite workers are able to live. There is no evidence of poverty or even of a "bare subsistence level" in the families of the employees of the anthracite industry.

The impracticability of establishing a standard minimum or living wage on the basis of the family budget, and its relation to increase or decrease in the cost of living, will be considered in the formal replies to these exhibits. However desirable it may be that every worker shall be paid a wage commensurate with his reasonable needs for the support of himself and family, the value of the service performed must ever be an essential factor in the preparation of a wage scale. The difference in the capacity and in the requirements of the individual, and the necessity for equal compensation for equal service make impracticable the establishment of a wage scale based on the "budget plan."

CONCLUSIONS AS TO WAGE

Summarizing the foregoing data and argument in reply to Demand No. 2, the operators submit the following:

(1) That conditions in the anthracite and bituminous industries are not the same, either as to the character of

the work or opportunity for employment, and that the increase granted the bituminous worker should not control as a basis of adjustment in the anthracite field.

(2) That the anthracite mines are on a basis of full-time operation. The average days worked were 285 in 1917, 293 in 1918 and 273 in 1919. The lesser working time in 1919 can be attributed entirely to the readjustment of markets following abrogation of Government control on Feb. 1. As soon as this was accomplished and in the coal year April, 1919, to March, 1920, the mines operated full time.

(3) That, based on a comparison of rates paid in other industries in the same territory, for occupations requiring like skill and effort, no wage increase is warranted.

(4) That, based on annual earnings, the increase in the cost of living has been fully met, and no further wage increase is warranted.

(5) That, taking daily earnings instead of annual earnings as the basis of comparison, it would be necessary to increase contract miners only 1.3 per cent over present rates, or 2.5 per cent over the 1916 scale, to parallel a 95 per cent increase in the cost of living.

(6) That, taking the daily rates of day men instead of annual earnings as the basis of comparison, it would be necessary to increase the highest paid day labor 14.9 per cent over present rates, or 24.6 per cent over the 1916 scale, to parallel a 95 per cent increase in the cost of living. The lowest paid day labor is now receiving a wage much in excess of the increase in the cost of living. The relationship of daily wage to increase in the cost of living for any rate is clearly set forth in Table VI.

(7) That, in case any increase or adjustment is determined upon, it should be based on the 1916 scale, so that occupations paid similar rates at that time may receive similar rates under any new scale that may be established.

(8) That, in case any increase or adjustment is determined upon, it should be on a percentage basis, and not a flat increase of the same amount per day to all classes of day labor. A flat increase, under present conditions, narrows the differential between the different classes of labor, giving due consideration to the purchasing power of the dollar, and lessens the incentive to advance from the lower-paid occupations to those requiring greater skill and training.

DEMAND No. 3

We demand that a uniform wage scale be established so that the various occupations of like character at the several collieries shall command the same wage.

In answer to this demand the operators submit that there are nearly 300 collieries in the anthracite field and that there are over 100 classifications of labor at a single colliery. It is conceded that there are minor variations in rates paid day labor for the same class of employment in different parts of the field.

However, it is not a fact that because a different rate may be paid at adjoining operations to the same occupation there is necessarily some irregularity in compensation. It may well be that the duties and responsibilities of the positions are entirely different and that a differential in rates may be fully justified.

Mr. Kennedy states that the rates paid carpenters, blacksmiths, and others are less than those paid in other industries. It is true that carpenters receive a lesser rate than the skilled men in the building trades and that blacksmiths may receive less than the more skilled man in industries. However, the character of the work performed is far different and the carpenter has continuous employment as compared to the seasonal employment in the building trades.

THIS ALSO IS A NEW DEMAND

The demand presented by the mine workers makes no reference to contract rates and it is difficult to understand why it has been brought into the discussion. It is well known that, while the rate per car or per yard may not be the same at different operations or in different veins at the same operation, yet the rates in effect have been established with due reference to all the conditions, and in one way or another the miner is compensated for his work on a basis that nets a fair comparative earning capacity.

What would be accomplished by a readjustment of contract rates to some different basis if the result in net earnings to the miner remains the same? While it may be desirable ultimately to secure greater uniformity in day rates, it would be impossible for this commission, in the limited time at its disposal, to tabulate and give proper consideration to a subject so complex and involving, as it does, a readjustment of rates throughout the entire field. In the negotiations the following was suggested by the Secretary of Labor and accepted by the operators as the only practicable answer to this demand:

It is understood and agreed that the Board of Conciliation shall act as a commission to make a study of, and report to the joint conference at the expiration of this contract, the matter of uniformity in day rates for the several occupations of day men at the respective collieries in the anthracite field.

DEMAND No. 4

We demand that shovel crews operating for coal companies shall be paid not less than the rates paid by contractors to shovel men.

This is a demand for a new basis of compensation, predicated on what others are paying, and without regard to the wage scales in effect, many of which date back to the award of the Anthracite Coal Strike Commission and have been adjusted as other wages have been adjusted since that time. If there is to be an equalization of wage, it would be just as logical for the operators to demand that the shovel crews of contractors, engaged in stripping operations, be paid the

same rates as the coal companies are paying.

Mr. Kennedy gave the rates paid in Kansas and New York as an example of rates in effect for shovel crews, without any reference to the character of the employment or living conditions that may obtain in these particular localities. He furthermore presented rates paid by different companies in his district, without any reference to the fact that the character of the equipment and intensity of work were far different. Again, in the case of the Dodson Coal Co. and the Lehigh Valley Coal Co. he submitted rates that are lower than the rates actually paid.

SHOVELS, BIG AND LITTLE

The operators contend that in many instances the work and responsibility of the positions are not the same. The coal companies operate many small shovels for loading of coal and culm banks, while the contractors operate only 70, 80, or 90-ton shovels, with the shovel engineer acting as supervisor of the work in the pit.

However, eliminating all other contentions, the operators submit that rates paid shovel crews have been established with due regard to the responsibilities of the positions, that the differentials between this class of labor and other classes are fair and equitable, and that no good reason can be shown for giving special consideration to men in this particular employment.

DEMAND NO. 5

We demand that the 8-hour day be extended to all classes of inside and outside day labor and monthly men with time and half-time for overtime and double time for Sundays and holidays.

Under the award of the Anthracite Coal Strike Commission appointed by President Roosevelt in 1902 a work-day of nine hours was established in the anthracite field. The following specific exceptions were made:

Hoisting engineers on water shafts.....	8-hour day
Firemen.....	8-hour day
Other positions continuously manned...	12-hour day

Those employed on the twelve-hour basis were to be "relieved from duty on Sundays, without loss of pay, by a man provided by the employer to relieve them during the hours of the day shift." This basis of operation continued until March, 1912, when, in compliance with a law enacted by the Pennsylvania Legislature, hoisting engineers on shafts and slopes, handling both men and coal, were put on an eight-hour day.

3,000 LONG-HOUR EMPLOYEES

There was no further change until May, 1916, when, by agreement, the eight-hour day was substituted for the nine-hour day. However, in positions continuously manned the twelve-hour day was continued, except in the case of hoisting engineers, coming within the provisions of the eight-hour law. There are approximately 3,000 men in the anthracite field employed on a basis of more than eight hours per day. Almost three-fourths of this number are working twelve hours and

the balance nine to eleven hours per day. The occupations, generally, are the following: Outside: Hoisting engineers, fan engineers, power-house engineers, pumpmen, stablemen and watchmen; inside: Hoisting engineers, pumpmen and stablemen.

WHERE ARE THE 1,500 MEN?

The operators contend that the men employed in these occupations are engaged in work requiring little physical or mental effort and that they undergo no hardship in working a 12-hour day. The best corroboration of this statement is the fact that very few men take advantage of the Sunday-off provision of the Anthracite Strike Commission and prefer to work every day, receiving an extra day's pay for Sunday work.

The operators further contend that under present conditions, with a shortage of labor everywhere and the necessity for maximum production on the part of the individual, it is unwise and unnecessary that there be a readjustment involving the employment of 1,500 additional men in work requiring so little physical or mental effort.

In the discussion of this demand it was shown that the compensation of men working on a twelve-hour basis had been fixed with regard to the longer shift and that it would be impracticable to place these men on an eight-hour basis at the same rate now being paid for twelve hours, without placing their wage completely out of line in comparison with other occupations requiring greater skill and effort. This fact alone requires that this demand shall have most careful consideration; for any decrease in annual earning power, under present conditions, might prove quite unsatisfactory to most of the men involved.

LONG HOURS, EASY SNAPS

In the matter of intensity of work the following brief summary of conditions may be of value:

Hoisting Engineers—There are comparatively few men in this occupation working a twelve-hour day. Where the condition obtains it will be found that the real work is confined almost entirely to the day shift. The night shift has little to do and is employed largely to provide continuous service in case of any emergency. Mr. Kennedy and Mr. Golden have referred to engineers hoisting men and rock or men and timber and working a twelve-hour shift as an attempt to evade the law. It is well known that where this condition obtains the men are working on tender shafts or slopes where the work is not constant or arduous and where it is no hardship to work a twelve-hour day.

Fan Engineers—These men are in reality oilers and are employed to watch and oil the fans while in operation. The position of fan engineer is one sought by hoisting engineers and others when they reach a point in life where they desire employment that requires little work. In this occupation

the fact is that the man seeks the job and the operator does not have to seek the man.

Power-House Engineers—These men are employed to watch and oil air-compressors, generators, motor generating sets and machinery of that general type. Their duties are confined to oiling and packing. They assist in repairs under the supervision of the colliery machinist or colliery electrician.

Pumpmen—These men are in charge of pumps while in operation and attend to the oiling and packing and replace worn parts when necessary. Mr. Golden has presented in detail a list of the duties of pumpmen in his district. One would infer that the work was most arduous. The fact is that while these duties may all be part of a competent pumpman's work, most of them represent work performed only at long intervals of time.

Stablemen—The duties of these men involve feeding of stock, care of the barns and assistance in harnessing and unharnessing. After the mules are out of the barn there is in reality insufficient work to keep them busy. It is a common practice to permit stablemen to go to their homes in the middle of the day and return in time to take care of the stock.

Watchmen—The character of this employment is so well understood that little explanation is necessary. Suffice it to say that Mr. Kennedy's expression that the men in this occupation are "constantly on the jump" hardly fits the case.

DEMAND FOR MORE HOURS

Embodied in Mr. Kennedy's discussion of this demand is a plea that two breakers in his district that are now operating a seven-hour day should be compelled to work an eight-hour day. This is a local condition, brought about by insufficient coal for full-time operation, and is entirely irrelevant to the intent of this demand.

The mine workers contend that it is a hardship for men in the occupations named to work a 12-hour day. The operators reply that the work is not arduous and that the positions are eagerly sought by men to whom the character of the employment appeals and who are quite willing to work the longer work-day.

The operators admit there is a wide difference of opinion as to what shall constitute a work-day under any and all conditions of employment. They contend, however, that if a day of more than eight hours is applicable to any employment it is certainly applicable to those now working the longer work-day in the anthracite field.

MERELY A LAST-HOUR EFFORT

It is true that they accepted the suggestion of the Secretary of Labor to place hoisting engineers and pumpmen on an eight-hour day. However, this was only done in a spirit of compromise and in a last-hour effort to reach an agreement. The operators still contend that the character of the

employment makes the longer work-day no hardship and that the demand is not entitled to favorable consideration. The suggestion of the Secretary of Labor follows:

It is understood and agreed that the case of inside pumpmen and inside and outside hoisting engineers, working a twelve-hour cross shift, shall be referred to the Board of Conciliation. The board shall work out a basis of eight-hour shifts and the rates to be paid for an eight-hour day. Pending the decision of the board, inside pumpmen and inside and outside hoisting engineers working a twelve-hour cross shift shall continue on that basis and shall be paid the same increase as provided for day men under clause b hereof. When the rates to be paid for an eight-hour day have been established by the Board of Conciliation, time in excess of eight hours per day shall be paid for at the rate per hour established for the eight-hour day.

PUNITIVE OVERTIME RATES

We now come to the second portion of this demand, providing for time and half time for overtime and double time for Sundays and holidays. A request for punitive overtime was one of the demands submitted to the Bituminous Commission and refused in its finding.

The anthracite industry cannot operate a full 8-hour day if every employee is limited to eight hours' work in any one day. The plant must be maintained at a proper standard for satisfactory service, and repairs cannot be made while breakers and other equipment are in operation. If the maximum workday of the employee is limited to eight hours, it must follow that the actual time of breaker operation will be less than eight hours per day, with a resultant decrease in production and decrease in hours worked by all employees.

Mr. Kennedy makes the statement that the operators want overtime to show a high annual earning capacity for the employees. In support of this statement he has submitted pay checks of a carpenter who worked 700 hours overtime in thirty-one semi-monthly pay periods. As a matter of fact, this represents on the average about nine and three-fourths hours per working day for a man in an occupation that carries as much overtime as any occupation at a colliery.

MORE PAY, NOT LESS OVERTIME

Mr. Golden shows that 4,467 outside laborers averaged 340 days of eight hours. As a matter of fact this represents but nine hours per day for full-time work. He further shows that 3,673 inside laborers averaged 299 days of eight hours. Why shouldn't a man work 299 days if he has the opportunity? Mr. Golden contends that because the breakers worked 273 days, the practice of working overtime was abused by working a man 299 days. The operators fail to see the logic of such a contention.

Mr. Dempsey says that men do not want to work overtime and that extra pay is demanded as a deterrent to overtime. The operators challenge the first statement and question the accuracy of the second. Thousands of men are not in favor of the 8-hour day and are only too glad of the opportunity to work more. Whenever punitive over-

time has resulted in no overtime there has been universal dissatisfaction. The real issue is more pay and not the elimination of overtime.

DEMAND NO. 6

We demand a closed-shop contract, which means full recognition of the United Mine Workers of America as a party to the agreement.

The operators understand from this demand that the mine workers ask for a contract embodying the principle of the "closed shop" and compulsory "check-off," involving, as it does, enforced deductions from the worker's wages of dues and assessments levied by the United Mine Workers of America.

The relations between employer and employee in the anthracite field have for almost twenty years been governed by the principles and practices established by the award of the Anthracite Coal Strike Commission appointed by President Roosevelt and the decisions of the Board of Conciliation created thereunder. In the successive contracts of 1906, 1909, 1912 and 1916 these principles and practices have been jointly affirmed and continued.

One of the principles established by the commission and so long satisfactorily continued has been the "open shop," embodying full protection to employees to organize as they may desire and to safeguard the rights of their members before the Board of Conciliation against any employer who might seek to discriminate because of membership in a labor organization. Membership in such labor organization must, however, be based upon the freedom of choice of the individual.

WANT OPEN SHOP TO CONTINUE

For almost twenty years the Board of Conciliation has successfully adjusted all differences between employer and employee, and its work has received universal respect and approval. Its organization has been taken as a model in other industries. During this same time the anthracite mine workers' organization has been fully protected in its rights under the award of the Anthracite Coal Strike Commission.

The operators have no antagonism toward the organization of the mine workers, but are unwilling to substitute for a tried and successful institution a plan embodying principles repugnant to the American principle of freedom of choice, whether on the part of employee or employer, and involving, as it does, full compliance with whatever rules the organization may see fit to establish.

COURTS SUSTAIN OPEN SHOP

The operators take the position that the relations between employer and employee in the anthracite region should be continued on the principle of the "open shop" as set forth in the award of the Anthracite Coal Strike Commission, to which the organized employees of the anthracite region have subscribed in the past and under which their rights have been fully protected.

Furthermore, the principle of the "open shop" has received the unqualified endorsement of the courts, both state and federal. The demand for an extension of the "check off" in the bituminous field was not granted by the President's commission and the question of its continuance where now imposed is to be investigated by order of the commission.

In reply to a demand of a similar nature made before the Anthracite Strike Commission in 1902 by John Mitchell, representing the anthracite mine workers, that commission said:

The commission agrees that a plan under which all questions of difference between the employer and his employees shall first be considered in conference between the employer or his official representative and a committee chosen by his employees from their own ranks is most likely to produce satisfactory results and harmonious relations, and at such conference the employees should have the right to call to their assistance such representatives or agents as they may choose and to have them recognized as such.

In order to be entitled to such recognition, the labor organization or union must give the same recognition to the rights of the employer and of others which it demands for itself and for its members. The worker has the right to quit or to strike in conjunction with his fellows when by so doing he does not violate a contract made by or for him. He has neither right nor license to destroy or to damage the property of the employer; neither has he any right or license to intimidate or to use violence against the man who chooses to exercise his right to work, nor to interfere with those who do not feel that the union offers the best method for adjusting grievances.

The union must not undertake to assume or to interfere with the management of the business of the employer. It should strive to make membership in it so valuable as to attract all who are eligible, but in its efforts to build itself up it must not lose sight of the fact that those who may think differently have certain rights guaranteed them by our free government. However, irritating it may be to see a man enjoy benefits to the securing of which he refuses to contribute, either morally or physically or financially, the fact that he has a right to dispose of his personal services as he chooses cannot be ignored. The non-union man assumes the whole responsibility which results from his being such, but his right and privilege of being a non-union man are sanctioned in law and morals. The rights and privileges of non-union men are as sacred to them as the rights and privileges of unionists. The contention that a majority of the employees in an industry by voluntarily associating themselves in a union acquire authority over those who do not so associate themselves is untenable.

Those who voluntarily associate themselves believe that in their efforts to improve conditions they are working as much in the interest of the unorganized as in their own, and out of this grows the contention that when a non-union man works during a strike he violates the rights and privileges of those associated in efforts to better the general condition and in aspirations to a higher standard of living. The non-union man, who does not believe that the union can accomplish these things, insists with equal sincerity that the union destroys his efforts to secure a better standard of living and interferes with his aspirations for improvement. The fallacy of such argument lies in the use of the analogy of State government, under which the minority acquiesces in the rule of the majority; but government is the result of organic law, within the scope of which no other government can assume authority to control the minority. In all acts of government the minority takes part, and when it is defeated the government becomes the agency of all, not simply of the majority.

It should be remembered that the trade union is a voluntary social organization, and, like any other organization, is subordinate to the laws of the land and cannot make rules or regulations in contravention thereof. Yet it at times seeks to set itself up as a separate and distinct governing agency and to control those who have refused to join its ranks and to consent to its government, and to deny to them the personal liberties which are guaranteed to every citizen by the constitution and laws of the land. The analogy, therefore, is

unsound and does not apply. Abraham Lincoln said, "No man is good enough to govern another man without that other's consent." This is as true in trade unions as elsewhere, and not until those who fail to recognize this truth abandon their attitude toward non-union men, and follow the suggestion made above—that is, to make their work and their membership so valuable and attractive that all who are eligible to membership will come under their rule—will they secure that firm and constant sympathy of the public which their general purposes seem to demand.

RIGHTS OF NON-UNION MEN

It is quite difficult to reconcile the contentions of the mine workers for the "closed shop" and "check-off" with the views so forcibly expressed above. We are told that the "closed shop" is necessary to make every employee a party to the agreement, whereas the commission denied the "closed shop" in no uncertain terms. In fact one of its findings was the following:

It is adjudged and awarded: That no person shall be refused employment or in any way discriminated against on account of membership or non-membership in any labor organization; and that there shall be no discrimination against or interference with any employee who is not a member of any labor organization by members of such organization.

We are told that the "check-off" is necessary to raise funds to carry out contractual relations, yet the commission held that it was incumbent on any labor organization "to make its work and its membership so attractive that all who are eligible to membership will come under its rule"—not by force but of their own free choice.

The mine workers submitted a brief, prepared by their attorney, purporting to show that it was possible for the operators to collect union dues without infringement of any statute. The operators have no interest in the legal phase of the situation. They are unalterably opposed to the "closed shop" and "check-off" for reasons clearly outlined. They are confident that this commission will see fit to reaffirm the fundamental principles laid down by the Anthracite Coal Strike Commission and which have been so forcibly reiterated from time to time in the opinions of our courts.

The operators are not opposed to the principle of "collective bargaining" or to periodical "trade agreements," provided such agreements are conscientiously observed by both parties subscribing thereto. However, they believe that such contracts can be successfully enforced only by willing co-operation of both employer and employee. The "closed shop" cannot insure control of the members of a labor union against their personal desires. In any wage agreement the influence of the union in upholding the "sanctity of contract" is purely moral—not legal—and depends for its success on the voluntary co-operation of its individual membership.

DEMAND No. 7

We demand that all dead work shall be paid for on the consideration basis existing at the colliery, and that where more than one miner is employed they shall receive the same rate.

This is a demand where a miner is taken from contract work to perform

other work that, irrespective of whether or not the work to be done is necessary to the continuance of his contract, he shall be paid the consideration rate and not the company rate applying to the work on which he is temporarily employed.

The operators contend that this demand is unfair and without justification. Great stress is laid on the fact that the miner has a certificate of competency as a contract miner. It is difficult to see wherein this affects the situation, for he is not performing the work contemplated in his certificate.

There is no reason why a contract miner, prevented from working on contract work, and asked to do repair work, should be paid any higher rate than that paid day men for doing exactly the same work. It may be that, temporarily, he will earn less per day than he would earn under his contract, but he will certainly earn more than if he went home and waited for the company men to make the necessary repairs.

DEMAND No. 8

We demand payment for all sheet iron, props, timber, forepoling and cribbing.

This demand, as interpreted by Messrs. Dempsey and Golden, contemplates payment for certain specific items of work where the same are not now separately paid for. As interpreted by Mr. Kennedy, not only the question of payment but the rates paid are involved. Mr. Kennedy contends that the rates are a "heritage of 1902" and were established on an unfair basis; that the umpire, in cases before the Conciliation Board, has sustained the rates as proper rates and "the men have been denied proper compensation."

Answering Mr. Kennedy, the operators submit that the rates of 1902, following the award of the Anthracite Strike Commission, have been accepted as the base upon which all adjustments have been made since that time. In support of this contention the following is quoted from the agreement of May 20, 1912:

For the purpose of facilitating the adjustment of grievances, company officials at each mine shall meet with the grievance committee of employees and prepare a statement setting forth the rates of compensation paid for each item of work April 1, 1902, together with the rates paid under the provisions of this agreement and certify the same to the Board of Conciliation within sixty days after the date of this agreement.

WORK PAID FOR AS COAL

Under the circumstances and accepting the decision of the umpire, in what way have the men been denied proper compensation? If these rates are now to be subject to readjustment, what foundation is left for the establishment of a new wage scale? Mr. Kennedy's argument is entirely foreign to the purpose and intent of the demand, as expressed and as explained by Messrs. Dempsey and Golden.

The operators contend that in demanding separate payment for each specific item of work the mine workers ignore the fact that all work of every kind is now paid for in one form

or another. It may be true that at certain operations payment for props, sheet iron, etc., is included in the price per car, per ton, or per yard, while at other operations these items are paid for separately.

However, this does not alter the fact that the work is paid for and any change in the system of payment would involve a readjustment of the entire contract scale. The real purpose and intent of this demand is to secure additional compensation for the miner, supplemental to any adjustment which the commission might see fit to make.

DEMAND No. 9

We demand where miners are prevented from working on account of lack of supplies that they shall be accorded the opportunity of making a shift at some other work.

This is a demand that if contract miners are unable to work because of lack of materials ordinarily furnished by the operator and required in the conduct of the work, they shall be temporarily given other employment. This has always been the practice within reasonable limitations.

The operators cannot accept the principle the mine workers seek to establish that because a man is employed as a contract miner and reports for duty he must, necessarily, be given work. However, they are willing that he should be given preference if other work is available and therefore concurred in the following suggestion of the Secretary of Labor in reply to this demand:

Whenever contract miners reporting for duty are shut out of work through no fault of their own, they shall be given the opportunity of working in other places or at other work, at the rate of wages established for such other places or such other work, if such other places or other work are available.

DEMAND No. 10

We demand in the settlement of grievances that the aggrieved party shall have the right to demand settlement upon a basis of equity, and if such equity settlement is requested the conditions of 1902 shall not enter into or prejudice the case.

This demand contemplates that the mine workers shall have the right to present to the Conciliation Board during the term of a contract the question as to whether any rate provided in such contract is or is not "equitable," and that in the determination of their grievance the fact that the rate in question is an agreed rate, whether based on the award of 1902 or not, shall not prejudice their case.

The proposed practice would undermine the very foundation of successful collective bargaining. The President's Industrial Conference has well expressed the governing principles as follows:

Essential to the success of collective bargaining is a clear realization by both sides of the obligations it imposes, and of the limitations of these obligations. The collective bargain usually relates to standards only, such as the rate of wages to be paid, the hours to constitute a day's work, and the conditions under which this work is to be performed. There is also usually a specified time during which the agreed standards are to be maintained. The agreement imposes on the employer the obligation to observe these standards if he provides work. It does not bind him to provide work. Similarly it imposes on employees the obligation to accept the agreed stand-

ards so long as they remain at work. It does not bind them to continue in employment.

Every agreement since 1902 has been based upon the rates and practices established by the Anthracite Coal Strike Commission. Each agreement has modified or supplemented this award either in general rates or in particular cases or practices. These agreements have been for definite terms and certainly, during such terms, the agreed rates should be the established standards which both parties are obligated to maintain and by which the Board of Conciliation should judge and determine disputes.

It may be true, as Mr. Kennedy says, that "equity is one of the cardinal principles of the American Government," but the determination of equity is in accordance with the Constitution and law of the land. Likewise, any determination in equity by the Board of Conciliation must be based on the terms and principles of the agreement to which both parties have subscribed.

It may well be asked wherein would be the benefit to be derived from a contract which, if it embodied the provisions of this demand, would become no contract at all—if, instead of a fixed wage scale, insuring peace during the life of the contract, there should be inserted a provision that would permit any rate to be attacked at any time by either party on the ground of inequity. The operators contend that the effect of granting this demand would be chaos rather than the peace that should result from an agreement in which the obligation of both parties is clearly defined.

DEMAND No. 11

We demand that a uniform rate of 17c. per inch be paid for all refuse in all kinds of mining up to 10 ft. wide, and proportional rate be applied for all over 10 ft.

This demand is based on the theory that the miner is asked, within certain limitations, to separate the refuse in the vein from the coal before loading, and that he should therefore be compensated for his labor. It ignores the fact that he is now being paid for this very work—either by payment of a fixed price per yard, according to thickness of refuse, or by a yardage price on the rib, or by a car or ton price that includes payment for the refuse in the vein which the miner is required to handle. The bases of payment now in effect have long been established with reference to each vein and the particular condition in that vein and have been fixed to produce a fair and reasonable compensation.

It is asserted that the proposed rate of 17c. per inch for 10 ft. in width is fair and reasonable. As a matter of fact this rate is fully four times what is now generally paid in chamber work for refuse in the vein, where refuse is separately paid for. This commission could not consider any change in the basis of payment without securing in detail the conditions that obtain at each operation and the rates paid.

The operators contend that such survey would show that the miner is now being compensated for refuse handled as previously explained and that there is no justification for this demand. The real intent is to secure additional compensation for the miner supplemental to any other adjustment the commission might see fit to make.

DEMAND No. 12

We demand that wherever miners are now paid on the car basis hereafter they shall be paid on the legal ton basis and that dockage shall be eliminated.

This demand as to payment by the ton, instead of the car, was presented to the Anthracite Coal Strike Commission in 1902 and has been one of the demands before every joint conference since that time. The following is quoted from the award of the commission:

Any measure of work performed as a basis for payment must in a certain sense be arbitrary. Payment by the car, by the ton, or by the yard is the result of an agreement between presumably intelligent parties, and all the circumstances attending either method are matters for their consideration. If a miners' ton of 28 hundred-weight is taken as the basis of payment, the price for such ton is fixed with reference to its size. So of payment by the car or by the yard.

The commission is not now prepared to say that the change to payment by weight based on a 2,240 pound ton, when the price would necessarily be adjusted to the number of pounds—practically the case now—would prove of sufficient benefit to the miners to compensate for the expense and trouble thereby imposed upon operators now paying by the car. Many of the operators, in order to accommodate themselves to the change, would have to reconstruct the breakers or place the scales at the foot of the shaft, and, when there is more than one level in the mine, at the foot of each level.

The same argument holds good today, except that the more extensive development of the collieries makes the problem more complex. It is difficult to see wherein the miner expects to benefit by such a change, unless it is hoped that the ton price would be fixed on a basis that would give a greater return than the present car price. If this was done the whole question of miners' wages would be thrown into confusion. The operators contend that there is no reason why a car of fixed capacity does not constitute a basis of payment just as equitable as payment by weight. The bulk of the coal mined since the inception of the industry has been paid for by the car or the yard.

DOCKAGE A NEEDED PENALTY

Dockage is a penalty imposed for insufficient loading or excessive refuse in the mine car. The contention is made that cars have to travel long distances and that the coal is shaken down to such extent that the miner is docked for light loading. No reference is made to dockage for excessive refuse.

The fact is that after a car has traveled a short distance the coal reaches a permanent bed, and further settlement is not appreciable, irrespective of the length of haul. In the matter of dockage for refuse a car of absolutely clean coal is not expected or demanded, but it is understood that there shall be no more refuse than the prescribed rules at the colliery allow, based on the con-

ditions that obtain in the mining of the coal.

Dockage for cars improperly loaded is therefore a reasonable penalty imposed on the miner and has been in effect since the beginning of the industry. The subject was given careful consideration by the Anthracite Strike Commission, and to protect the miner against any unfair practice the commission made the following award:

That whenever requested by a majority of the contract miners of any colliery, check weighmen or check docking bosses, or both, shall be employed. The wages of said check weighmen and check docking bosses shall be fixed, collected and paid by the miners in such manner as the said miners shall by a majority vote elect, and when requested by a majority of said miners the operators shall pay the wages fixed for check weighmen and check docking bosses out of deductions made proportionately from the earnings of the said miners, on such basis as the majority of said miners shall determine.

With this protection to the miner, it is difficult to understand why a demand of this kind is made.

DEMAND No. 13

We demand that on all reel motors one motorman and two brakemen be employed and that on all other motors and engines assistants or patchers be employed and that when motormen or engineers are repairing their motors or engines their assistants shall be employed to help in the work.

This demand is an effort to take out of the hands of the management the authority to determine the number of men required and arbitrarily to fix the number to be employed on reel motors, irrespective of conditions or the amount of work involved in the particular location in which the men are working. It furthermore provides that assistants are to be employed on repairs, irrespective of whether they may be competent or whether their services may be actually required. The nature of the demand and its effect on efficient management requires no comment.

DEMAND No. 14

We demand that for all tools lost through no fault of employees as a result of squeezes, water or fire, the men to be compensated for such losses.

This is a minor demand, and at the suggestion of the Secretary of Labor the following was accepted by the operators in answer thereto:

Contract miners whose tools are lost through no fault of their own as the results of squeezes, cave-ins and similar accidents shall be furnished with new tools by the company, corresponding to the tools lost, without expense to the miner.

DEMANDS NOS. 15 AND 16

Where contract miners are employed doing company work the company shall supply them with the necessary tools, and failing to do so shall compensate the miners by paying each miner not less than one extra hour per day for the use of such tools.

We demand that the company shall supply to all company men the necessary tools free of charge.

Demand No. 15 is a demand to change an established practice. It would be quite impracticable to supply tools to contract miners whenever engaged in company work; nor should extra compensation be paid for use of the miner's tools, as we will later show. Demand No. 15 should be considered in conjunction with Demand No. 16, for the two are interwoven, and any conclusion reached as to one necessarily affects the other.

Demand No. 16 provides "that the company shall supply to all company men the necessary tools free of charge." The practice in this respect is not uniform throughout the field. With many companies the company men have always been required to furnish all tools except special tools.

This was considered in establishing the rates paid and was prompted by the fact that under the conditions of employment it was practically impossible for the management to look after tools. It was the intent that by having the employee furnish his own tools the responsibility for loss and for proper care would attach where it rightly belongs.

Reverting to Demand No. 15, it will be seen that if the company men furnish their own tools, there is no reason why the contract miner, engaged in company work, should be furnished tools or receive extra compensation for the use of his own tools.

The purpose of this demand is further to increase wages to the extent that the miner and company men may be relieved from purchasing tools. The operators submit that if wages are found to be inadequate, the same should be adjusted in the light of established conditions and practices and that a wage increase should not be supplemented by favorable consideration of demands of this character.

DEMAND NO. 17

We demand that check weighmen and check docking bosses be permitted to serve as members of mine committees.

The demand that check weighmen and check docking bosses shall be eligible to membership on mine committees is in contravention of clause (d) of the agreement of May 20, 1912, wherein it was provided that the grievance committee at each colliery should be composed of three employees. In June, 1917, the check docking boss at Pyne Colliery filed a case before the Conciliation Board asking that the Delaware, Lackawanna & Western Railroad Co. be compelled to recognize him as a member of the grievance committee of that colliery. This case was referred to Charles P. Neill, umpire.

The decision of the umpire fully sustained the position of the company and held that check docking bosses were not employees and therefore not eligible to membership on grievance committees. The demand, as here presented, is, therefore, an effort to write into a contract that which has already been a matter of adjudication and in which the mine workers lost their case.

The operators submit that a grievance committee at each colliery was made part of the 1912 agreement, only with the distinct understanding that its members were to be employees at that colliery. The check docking boss is not, in any sense, an employee of the operator. Under the circumstances it would be a direct violation of the spirit and intent of the agreement of 1912 to admit him to membership on the colliery committee.

DEMAND NO. 18

We demand that where contract miners encounter abnormal conditions in their working places they shall have the privilege of going on consideration work. A definition of consideration work shall be written into the agreement.

This demand was the subject of much discussion during the negotiations, and at the suggestion of the Secretary of Labor, the following was accepted by the operators as representing a proper answer to this demand:

Whenever deficient or abnormal conditions are encountered in a working place by contract miners, the miner or miners affected shall make such fact known to the foreman, and if the foreman and the man affected are unable to agree, it shall be referred to the grievance committee and dealt with in the manner provided for other grievances. Work shall be continued pending the adjustment unless otherwise directed by the foreman, and whatever decision is made shall be retroactive to the date upon which the grievance was raised.

In submitting the foregoing data and argument the operators do so with full confidence that the commission will find in its pages a satisfactory basis for adjudication of the matters in dispute. Every effort has been made to outline the situation clearly, so that in arriving at conclusions there can be no opportunity for a misunderstanding of the points in controversy.

The operators are confident the record will show that they were at all times willing and anxious to reach an amicable settlement with the miners' representatives; that the concessions offered were extremely liberal in the face of the facts, and that they could have gone no further, in justice to the miners themselves, the public, and the industry.

American Coal Imported by Italy During 1919 and 1920

It was only in the month of February, 1919, that Italy began to import American coal. The amount of coal imported increased continually as a consequence of the growing demands of national industry and the decrease in the supply of English coal, which formerly had sufficed to cover requirements entirely.

The following figures show Italy's imports of American coal by months from February, 1919, to April, 1920. The receipts of American coal for the month of May are estimated officially at 300,000 tons.

Months	For Government Account Metric Tons	For Private Firms Metric Tons	Totals Metric Tons
1919			
February.....	2,127		2,127
March.....	9,345		9,345
April.....	26,477		26,477
May.....	34,258		34,258
June.....	21,533	45,396	66,929
July.....	57,970	31,509	89,479
August.....	135,869	84,301	220,170
September.....	155,310	218,105	373,415
October.....	222,738	273,023	495,761
November.....	175,238	161,347	336,585
December.....	2,314	13,587	15,901
1920			
January.....	17,040	2,851	19,891
February.....	68,597	35,152	103,749
March.....	79,726	14,472	94,198
April.....	53,147	65,189	118,336
Totals.....	1,061,689	944,932	2,006,641

Up to December, 1919, c.i.f. prices for purchases made by the Government

with long-time contracts and consignments by installments ranged from \$33 to \$34, from which time a certain decrease in price was noted.

From January to April, 1920, the Government effected new purchases c.i.f. for isolated cargoes only, varying in price on an average from \$31.50 to

\$32.75 per ton. Generally private firms bought at the same or at slightly higher prices.

The above figures have reference, of course, to c.i.f. cargoes for ports on the western coast of Italy, since for cargoes to the Adriatic coast the price is \$2 or even \$3 higher.

Operating Conditions at Coal Mines in Indiana, June, 1920

PREPARED BY JONAS WAFFLE, SECRETARY, INDIANA COAL TRADE BUREAU

Railroads on Which Mines Are Located	District	No. of Mines	Tons Produced	Full Time Capacity (Tons)	Tons Lost and Causes Therefor			
					Total All Causes	Car Shortage	Other Labor Trouble	Mine Disability
Big Four.....	Terre Haute.....	6	72,947	104,764	31,817	28,498	325	2,994
B. & O. S. W.....	Vincennes.....	7	31,343	49,013	17,470	12,013	3,071	2,386
	Clinton.....	27	286,671	422,333	135,662	119,914	7,628	6,120
C. & E. I. 1.....	Sullivan.....	16	166,057	287,286	121,229	113,491	1,694	6,044
	Total.....	43	452,728	709,619	256,891	233,405	11,322	12,164
C. I. & W.....	Dana.....	1	10,927	12,352	1,425			
Cent. Ind.....	Brassil.....	1	4,852	4,852				
	Clinton.....	14	276,474	326,591	50,117	44,833	1,948	3,336
C. T. H. & S. E. 3	Linton.....	27	26,695	397,724	130,774	80,638	24,282	25,854
	Total.....	41	543,424	724,315	180,891	125,471	26,230	29,190
E. & I.....	Clay City, Petersburg.....	11	102,365	184,792	82,427	71,056	4,163	7,208
	Evansville.....	2	10,038	11,052	1,014	978		36
E. & E.....	Evansville.....	3	10,037	18,141	8,104	2,749	2,084	3,271
E. S. & N.....	Evansville.....	6	53,323	110,027	56,704	50,900	1,417	4,387
Ills. Cent.....	Linton.....	21	204,855	357,634	152,779	55,531	51,950	45,298
Monon 4.....	Linton.....	20	205,179	349,648	144,469	105,837	4,781	33,851
	Main Line.....	21	364,783	746,108	381,325	190,366	107,417	83,542
P. C. C. & St. L. 5	Vincennes.....	21	569,962	1,095,766	525,794	296,203	112,198	117,393
	Total.....	41	61,776	121,377	59,601	53,484	458	5,659
	Ayrshire.....	7	44,259	97,936	53,677	48,995	341	4,341
Southern.....	Boonville.....	6	106,035	219,313	113,278	102,479	799	10,000
	Total.....	13	106,035	219,313	113,278	102,479	799	10,000
Totals.....		191	2,173,036	3,601,630	1,428,594	979,283	214,984	234,327
Total for month ending May 31, 1920.		194	1,404,687	3,601,144	2,196,457	1,715,131	399,613	81,713

(1) Two mines served by two railroads. (2) Includes all mines South of Terre Haute. (3) One mine served by two railroads. (4) Four mines served by two railroads. (5) Includes all mines on St. Louis and Michigan divisions. (6) Includes all mines on Vincennes Division and Dugger Branch.

No Trouble at Matewan Murder Trial

WHILE there was a feeling of tenseness at the opening of the July term of the Circuit Court in Mingo County, West Virginia, at Williamson on July 12 when twenty-four men indicted for murder in connection with the death of ten people at Matewan on May 19 appeared before the bar of the court to answer to the charge against them, nevertheless no untoward incident marred the opening of the court. No effort will be made to try those charged with complicity in the Matewan trouble at this term of court, the cases against the twenty-four going over to the September term of court. Each of the defendants was required to give bond in the sum of \$10,000 for his appearance at that term.

Fearing a possible clash, no effort was made to have the six Baldwin-Felts men under indictment for the murder of Mayor Testerman and Otto Kingsley appear in court with other defendants charged with the death of the comrades of the six under indictment. They will be asked to give bond later.

Is an Extra Deadwork Rate a Bonus?

NO DECISION was reached at the conference of representatives of the mine workers and operators who are investigating the bonuses for deadwork at the mines of the Maryland Coal Co. At the meeting held in Fairmont during the week ending July 10 it was impossible for the two sides to agree. The conferees after failing to reach an agreement submitted the question to two arbitrators—George Osler, of Pittsburgh, and Percy Tetlow, statistician of the United Mine Workers. These will select a third arbitrator, to whom evidence collected will be submitted.

Bonuses were paid in northern West Virginia until a few months ago, when the Baltimore agreement was made. Under that agreement they were to be eliminated. The Maryland Coal Co. when extending the duration of the wage contract last December, in order to hold their miners, agreed to pay a certain bonus for deadwork. The position taken by statistician Tetlow is that operators to meet local conditions are permitted to pay for deadwork an amount in excess of the scale. On the other hand, operators contend that under the Baltimore agreement no bonuses could continue to be paid after April 1 of this year.

Back Pay of \$20,000 Is Distributed

AFTER a meeting between President Lonnie Jackson, of district No. 23, United Mine Workers of America, and the Memphis Coal Mining Co., which operates near Mannington, in the western Kentucky field, a mine having about a hundred mine workers, the company agreed to pay \$20,000 of back pay to its employees, being an increase in pay for work performed between Nov. 24, 1919, and April 1, 1920.

The sum was to be paid in two installments—on July 3 and on the first Saturday in August. But it is arranged that if the company finds it difficult to make payment an extension may be granted. Several western Kentucky mines did not give the increase in pay Nov. 24, 1919, as they questioned whether they were in honor bound to do so. To convince them of their obligation the mine workers at this Mannington mine went on strike for two weeks.

Several suits have been started in the Christian County Court in an endeavor to collect back pay of this

character, \$8,000 being involved in these cases. The Williams Coal Co., also operating at Mannington and employing sixty miners, has agreed to pay over all the back pay as soon as the first suit in any of the cases is won by a mine worker. The Williams strike, which also lasted two weeks, came to an end as soon as this promise was made. The two companies had individual contracts with the union which they apparently claimed were of effect till April 1.

Check Weighman Refused Access to Tipple and Strike Results at Erie Mine

AS THE result of a refusal on the part of the officials of the Pennsylvania Coal Co. to let Alexander Campbell act as check weighman and Charles Alba act as check-docking boss a strike of 1,200 employees occurred at No. 6 colliery, Pittston, Pa., on July 1. The company declares that it does not consider that the men were duly elected.

When the mine workers began picketing, one of the picketers was put under arrest by company police. It appears that the company was willing to recognize the former check weighman and check-docking boss but was unwilling to co-operate with the new appointees till the charges made against them were disproved. However, in the afternoon the company declared itself of another mind and willing to allow Ford and Bell, the former check officials, to be replaced by Campbell and Alba. The strike was clear evidence that the employees did not believe that the newly-chosen officials were unworthy of their confidence so the company quite properly recognized their choice.

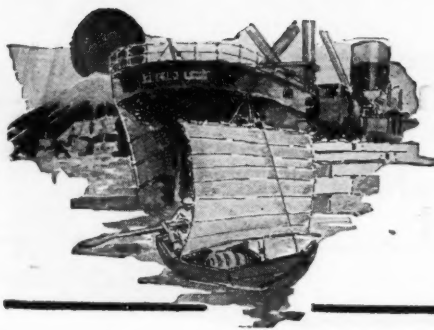
Six Who Refused to Testify in Industrial Relations Court Are Sentenced to Jail

BECAUSE they have refused to testify as to the strike in the Kansas coal fields six officials of the Kansas district of the United Mine Workers of America were on June 16 sentenced to the county jail until such time as they are ready to testify in the Industrial Relations Court of that state. This was the outcome of a trial for contempt held in the Crawford County Court. A stay of execution was, however, given by Judge A. J. Curran on an appeal, the men giving bonds of \$2,000 each.

The men in question were James McIlwrath and H. H. Maxwell, board members; Thomas Cunningham, traveling auditor, and John Steele, Willard Titus and John Fleming, joint members.

District Union Leaders To Be Tried for Complicity in Glen White Shooting

OFFICIALS and board members of the New River district, No. 29, of the United Mine Workers of America, against whom perjury charges are now pending as the result of testimony alleged to have been given in the trial of Tony Stafford at Beckley last January, will be tried at the October term of the Criminal Court of Raleigh County. Their cases were set for trial at the time mentioned at a term of the Raleigh Criminal Court during the week ending June 26, when the grand jury brought in new perjury indictments against "Peggy" Dwyer, a board member, and against Obe Clendenin.



Foreign Markets and Export News



English Bunker Coal Shipments Are Increasing

During April, according to the *Colliery Guardian*, 1,175,564 tons of coal were shipped from England for the use of steamers engaged in the foreign trade, as compared with 886,877 tons in April, 1919, and 1,795,619 tons in April, 1913. During the first four months of the present year 4,520,957 tons have been so shipped, as compared with 3,583,485 tons, and 6,744,106 tons in the corresponding periods of 1919 and 1913, respectively.

Coal Output of Scotland in 1919 Was Slightly Increased

Consul George E. Chamberlin, Glasgow, reports that the estimated output of the Scottish coal mines for the year 1919 was 32,000,000 tons, an increase of 110,000 tons over that of the preceding year. Statistics as to the quantity exported are not yet available. There were threatened labor troubles throughout the year that interfered with production to some extent. Following the deliberations of the Sankey commission, appointed by the Government, an advance of 48 cents per ton was allowed the miners and one hour per day deducted from their working time. The advance in wages and the decrease in hours of labor went into effect on July 16, 1919.

On June 28, 1917, the first systematic attempt by the Coal Controller was made to regulate prices for export, the prices for Scotch districts being from \$5.84 for third grade to \$7.54 for Fifeshire first quality navigation, f.o.b. nearest port. These prices were regarded as fixed in the cases of shipments to France and Italy, and a minimum for shipments to neutral ports. Since then various changes have been made. The latest revision of the schedule was issued by the Controller of Coal Mines on May 28, 1919, when prices were fixed as follows:

Quality	Schedule "A" minimum, France and Italy.	Schedule "B" minimum, neutral countries.
Lanarkshire:		
Best splint.....	\$9.00	\$17.04
Best all coal.....	8.51	15.33
First navigation.....	9.00	17.04
Fifeshire:		
First steam.....	8.51	17.04
Third steam.....	7.84	14.60
First navigation.....	9.24	17.04

All per ton, f.o.b. nearest port.

On August 22, 1919, an order was issued, with the concurrence of the Coal Controller, raising the price by \$8.51 per ton over schedule A in the case of France and Italy, and \$4.86 per ton

over schedule B in the case of neutral countries. These prices are being exceeded in some instances by \$2.43 per ton, especially in shipments to neutral countries.

The above prices are much above those for local consumption. Coal for domestic purposes is now selling in Glasgow at approximately \$9.75 per ton, and for industrial purposes about \$2.43 per ton higher. This necessitates the retention by the Fuel Controller of a certain portion of the output of mines for home consumption. The percentages fixed for the years 1918 and 1919 are as follows:

District	1918		1919	
	Home Trade Percent- age	Export Percent- age	Home Trade Percent- age	Export Percent- age
Lanarkshire.....	85	15	86	14
Fifeshire.....	72	28	71	29
Lothians.....	86	14	84	16
Ayrshire.....	95	5	96	4

The above allowance for home consumption is not sufficient to meet requirements and the rationing system introduced during the war is still in force. While this system may, in some instances, be a hardship on consumers, on the whole it has been highly beneficial, as with it the fuel control has given the public a much lower price than would otherwise have been obtainable. The export price would have governed that for home use.

Bituminous Beds in Colombia To Be Worked

In 1919, Trade Commissioner P. J. Bell, Barranquilla, reports, preliminary plans were made to work the beds of bituminous coal in Colombia which lie along the bank of the San Jorge a short distance above the head of navigation. The seams in these deposits vary in width from a few inches to 12 feet; the vein which it is planned to work has a width of 10 feet and a dip of 14 deg. from the horizontal. Surface soil only has to be removed to uncover the coal which lies at a depth of 1 to 2 yards under the topsoil. A preliminary analysis of the coal was made and some work done to clear the river for navigation. An initial shipment of 3,000 tons to Barranquilla has been contracted, and it is planned to float the coal down to Barranquilla in 100-ton barges.

The local consumption of coal at Barranquilla, including the needs of the Barranquilla - Puerto Colombia and Santa Marta railways, is estimated at approximately 1,000 tons per month. Mining cost should not exceed \$0.50 per ton and the cost of barging to Barranquilla not more than \$6 per ton.

Japanese Coal Market Promises Early Improvement

Wheelock & Co.'s coal market report, issued at Shanghai, recently, states that the Japanese coal market has been very quiet during the past fortnight, which is not to be wondered at in view of the recent decline in exchange. The local silk filatures are expected to re-open next month with the advent of the new cocoon season's crops, however, and this should have a beneficial effect on the market. The market in Japan has weakened somewhat for second and third grade dust coals, but the prices for first quality dust and lump coals continue firm.

Fushun mines seem to have recovered from the disastrous explosions which occurred some three years ago and as the output has now been considerably increased there is a certain amount available for export, but owing to exchange and the high cost of producing it is difficult to do business locally.

When supplies of the better grades of Kaiping lump coal have been made to yearly contractors a very limited quantity of No. 2 lump remains for the open market, the supplies of which fall short of the demand. There also is a temporary shortage in other grades.

Coal prices are quoted as follows:

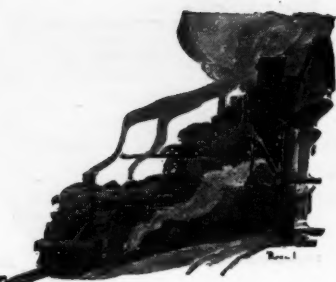
JAPAN COAL		Contracted for ex-wharf
Miike lump.....		Taels
Miike small.....		ex-Wharf
Miike dust.....		
Kishima lump.....		14.00
Kishima dust—no stock.....		10.00
Shakano lump.....		13.00
Arate lump.....		12.00
Shimoyamada kirigomi.....		11.00
Shin Shakano Kirigomi.....		11.00
Yoshinotani No. 1 lump.....		12.00
Yoshinotani No. 2.....		10.00
KAIPING COAL		Taels per Ton ex-Wharf
No. 1 lump.....		14.00
Loco lump.....		13.50
No. 2 lump.....		10.00
Washed nuts.....		13.50
Washed slack.....		10.50
No. 1 slack.....		9.00
No. 2 slack.....		8.50

Departure of Refugees Affects Coal Output

The coal mines at St. Laurent-sur-Gorre, in the Department of Deux-Sevres, veins of which extend just over the border into the Department of Vendée, according to a report by Consul W. W. Brunswick, La Rochelle, produced 59,000 tons of coal in 1918, against 27,000 tons in 1919. The loss in production for 1919 as compared with the preceding year is explained by the return to their homes of refugees from the north.



Production and the Market .



Weekly Review

Production Gaining—Prices Still Mount, with Prospects for Still Higher Figures Before the End of the Month—Emergency Measures To Be Taken by Operators and Railroads Expected to Relieve Conditions of Supply in Northwest and Possibly in New England

FOR the last two weeks interest has centered in the efforts of the coal operators and the railroad officials to find a solution of the coal shortage situation. It is now too early to know the sentiment of the trade regarding the plan to control distribution by a series of limited embargoes, which is understood to be the method proposed.

Production of soft coal in the week of Independence Day was 9,803,000 tons, a record for this week second only to that attained in 1918. All indications are that production in the week of July 17 will be the record so far since the strike began in April. Because of the five-day week the Geological Survey has not estimated the average daily output and the curve below does not show a figure for the week of July 3. It will be brought up to date next week.

Alabama is suffering from scattering strikes that have seriously reduced the much-needed output of a number of important mines. A strike has developed in the anthracite region and is causing New York to worry about the supply of domestic fuel that comes from the area affected. The strike in the Thacker field of West Virginia still is in effect. As a result of the mines there being shut down, the Norfolk & Western has a full car supply for all other mines on its lines.

Prices show no disposition to fall, in fact they are slowly mounting as far west as Chicago, and in some fields of the East where public utilities have begun to call for assigned cars prices have taken a sharp upward trend because of the fewer cars of free coal that are available.

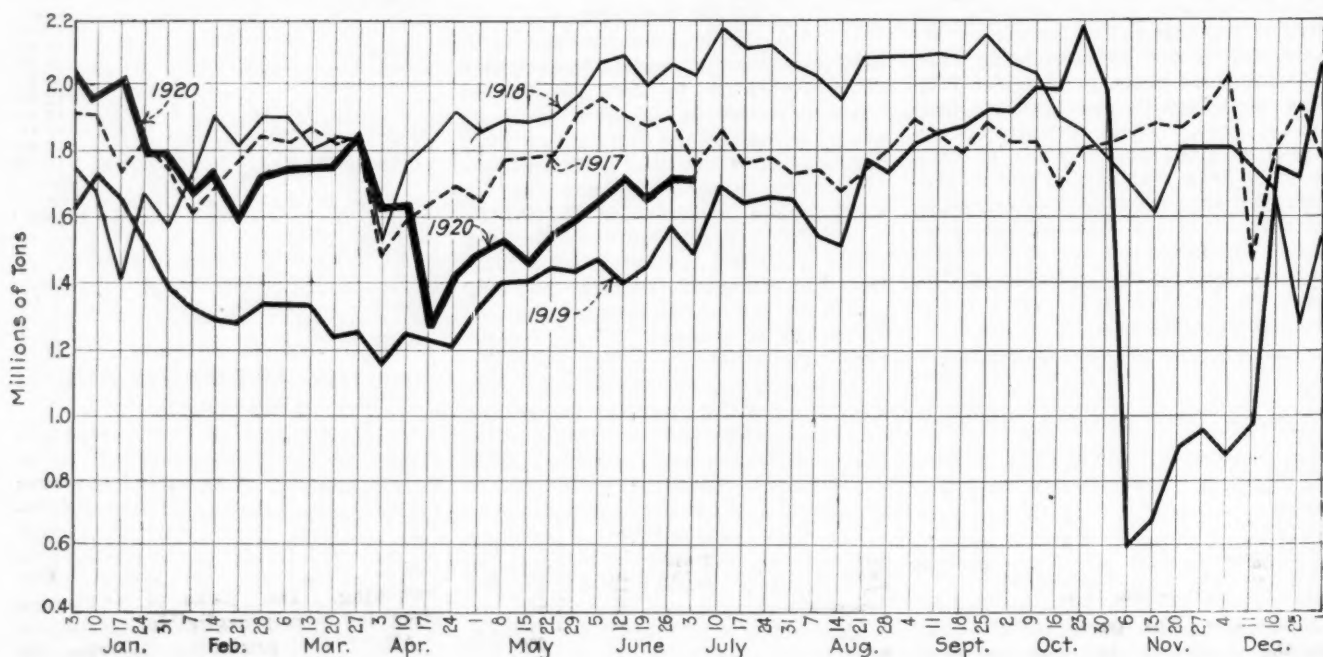
New England is becoming aroused and says that it has not yet really begun to buy for tide delivery. In Indiana the state is seriously considering a law to control the export of coal out of the state as a means of protection of home industries. Michigan consumers are meeting this week at Lansing to adopt a plan of action to protect their coal supply.

At Atlantic tidewater ports movement is good but there are boats waiting for coal. Baltimore reports a record congestion in the harbor.

Lake Coal Dumped Season to July 17

(NET TONS)

	Cargo	Fuel	Total
1919.....	11,360,221	510,063	11,870,284
1920.....	5,010,389	390,758	5,401,147



*From weekly report of Geological Survey.

Reports From the Market Centers

New England

BOSTON

Spot-Coal Demand Continues and Prices Are Firm—All-Rail Movement Improves—Hampton Roads Despatch Is Somewhat More Favorable—Anthracite Situation Is One of Anxiety—Shipments Are Light.

Bituminous—The market this week has shown the same buoyancy that has been characteristic since May 1. Spot coal is still much in demand in this territory. The high figures that have prevailed for the past fortnight have attracted shipments from Hampton Roads. Now that buyers will pay a price that is more nearly competitive with export business the coal comes forward—\$17@20 has been paid recently for the Southern coals f.o.b. cars at Boston, plus whatever demurrage charges accrue.

Prices continue their upward swing, and there is yet to be seen any indication of reduced figures. Except among certain buyers even the high volatiles are being readily absorbed. With the railroads still making strenuous exertions to get supply fuel there is no likelihood of any drop in prices, at least not on the merits of the market as it now stands.

A reasonably large proportion of New England's coal is coming forward on contract. There are few industrial plants that are in great distress. The railroads have been able lately to improve measurably their service. Serious cases of congestion at the gateways have been worked out, and while embargoes are still intermittent there is quite a marked shortening of the time from mines to consumer.

There is coal to be had for spot shipment in almost any reasonable quantity, provided only the buyer will pay the going price.

The Virginia terminals are dumping coal in almost normal volume. Despatch is better than for some weeks, although foreign bottoms still find the going hard. Spot sales at Hampton Roads are now seldom reported, but it is noticed that clearances for New England are somewhat more frequent.

Current quotations for bituminous at wholesale range about as follows:

	Clearfields	Cambrias and Somersets
F.o.b. mines, net tons.....	\$10.50@11.75	\$11.50@13.00
F.o.b. Philadelphia, gross tons.....	13.60@ 15.00	14.75@ 16.50
F.o.b. New York, gross tons.....	14.00@ 15.40	15.10@ 16.85

Anthracite—The trade continues to feel the keenest anxiety over domestic sizes. A great many householders have their coal in, it is true, but there is yet

quite a heavy tonnage to come forward. Up to the time of the freight trainmen's strike on the Philadelphia & Reading and on the Pennsylvania good progress was being made by water, but all-rail the situation is not so favorable. On the New Haven road in particular there are many retail dealers who as yet have had less than a single month's full quota since Apr. 1.

Tidewater

NEW YORK

Anthracite Is Needed to Relieve the Situation—Market Is Likely To Feel Strike in Upper Fields—Steam Sizes Are Stronger—Peak May Be Reached in Bituminous Prices—Conditions Are Somewhat Better.

Anthracite—The cry for coal is becoming more urgent. Movement here has not increased to any appreciable degree and this does not speak well for next winter's supply in the dealers' bins.

Complaints from retail dealers that the large companies are not shipping sufficient coal to meet their standing orders are numerous.

The prospect that upward of 6,000 mine workers in the upper coal fields would quit work because of disputes with their employers will have an important effect upon the local situation, as considerable of the coal produced at the mines affected comes to this market.

Shipments from all of the docks with the exception of Port Reading have been in better shape. Port Reading continues under embargo because of the difficulty in getting barges towed from the docks.

Domestic sizes of independent producers are holding firm around \$11, with the demand strong. The steam coals are firm with stocks not over-supplied. Independent buckwheat is being quoted from \$4.40 to \$4.85, quality entering into the situation. Rice and barley show little change from last week.

Current quotations for company coals, per gross ton, at the mine and f.o.b., New York Tidewater, lower ports, are as follows:

	Mine	Tidewater
Broken.....	\$7.40@7.55	\$9.25@9.40
Egg.....	7.40@ 7.55	9.25@ 9.40
Stove.....	7.65@ 7.90	9.50@ 9.75
Chestnut.....	7.70@ 7.90	9.55@ 9.75
Pea.....	5.95@ 6.35	7.70@ 8.10
Buckwheat.....	4.00@ 4.10	5.75@ 5.85
Rice.....	3.00@ 3.50	4.75@ 5.25
Barley.....	2.25@ 2.50	4.00@ 4.25
Boiler.....	2.50	4.25

Quotations for the domestic coals at the upper ports are generally 5c. higher

on account of the difference in freight.

Bituminous—Many tradesmen believe the peak in prices has been reached and that the market is about ready to go in the other direction. To back their opinion they point to an improvement in car supply in parts of the Clearfield region and to the conferences held in this city by committees of railroad executives and bituminous operators, at which the chief topic of discussion was car supply and distribution.

The price list shows no recessions but on the contrary some grades have been held at slight advances over the previous week's quotations.

It was estimated there were about 4,000 cars of coal at the various loading docks on July 16, of which 2,500 had been reported to the New York Tidewater Coal Exchange. This was a slight improvement over the tonnage on hand a week previous, especially at Arlington and Port Reading. Pier 18 was under embargo, except for certain specific coals, and shipments from Port Reading were subject to permits. Movement from South Amboy was reported as about 70 per cent.

Quotations, at the mines, on Pools 1, 9 and 71, ranged from \$13 to \$14, with little being offered; Pool 10, around \$12.50; Pools 11 and 18, \$11.75@12.50; and Pool 34, \$11.75. Quotations f.o.b. piers ranged from \$16 to \$16.25 and from \$17 to \$17.25 alongside.

PHILADELPHIA

Anthracite Stocks Are at Low Ebb—Moderate Shipments Come in Over P. R.R., but P. & R. Has Embargo on Hard Coal—Steam Coals Are in Strong Demand—Buckwheat Is Scarce, but Rice Is Fairly Plentiful—Barley Is Getting Stronger—Bituminous Is Still Scarce and High—Car Supply Is Somewhat Improved—Business at Tide Continues Good.

Anthracite—The stocks of coal in the yards of the dealers at this time are so low that it comes close to being a record condition for shortage of tonnage. Were it not for the fact that the dealers located on the lines of the Pennsylvania R.R. have been getting moderate shipments, it would be necessary to revert to the big coal strike of 1902 for a parallel.

The Philadelphia & Reading Ry., which supplies the bulk of anthracite tonnage to this district, has been embargoed against anthracite coal since June 19. With the continued absence of coal the early margin of tonnage is fast fading and it will not be long before an actual deficiency is shown at the present rate.

With fall fast coming on the dealers realize they are in for trying times in the course of seven or eight weeks. Most yards still have a fair quantity of pea coal on hand, but this is fast dwindling. The stocks of the larger sizes are merely negligible.

All of the producing interests are daily in receipt of inquiries from outside markets offering advances over the current circular, and in the case of in-

dependent operators this price is close around the \$12 mark. With the production limited by a short car supply it is not believed that anything but an extremely small tonnage is being sold at the high figures offered.

There is strong demand for the steam coals, with the possible exception of barley, and some of the larger companies are even reporting increasing activity in this size. Numerous large plants throughout this territory, and even at more distant points, are making inquiries as to anthracite steam sizes, and particularly in the case of rice coal have closed contracts.

With the collieries on short production the companies are just about able to keep up with their orders, and while the companies maintain a price around \$4.10 for buckwheat, independents have little difficulty getting from 25 to 35c. more for this size.

Bituminous—The price for soft coal remains high, and this despite frequent reports of a better car supply. Prices at this time for the better grades of Pennsylvania steam coal run from \$12.50 to \$14 at mines. There is some little tonnage of ordinary steam coal, mostly pool 18, offered around \$12, but even this classification at times comes close to top figures. The Westmoreland and Youghiogheny gas coals are reported to be selling anywhere from \$13 to \$15 a ton at the mines. Fairmont coals are somewhat lower and a price of \$12.50 at mines will cover all of the grades on an average, based on recent sales.

There continues to be a good business at tide, especially since the piers have reached good working order again following the strike. All of the export business is going forward under permits on account of obligations entered into prior to restrictions being placed on this class of business. It is not believed any really bona fide business of this kind would be prohibited.

Coke, both foundry and furnace, is high in price and extremely scarce. A price recently heard was \$18 a ton at ovens, as compared with contract prices entered into last spring around \$8 to \$10.

BALTIMORE

The Port's Greatest Congestion of Ships Awaits Loading—Car Supply Is Discouraging—Prices Are Over Wide Range—Anthracite Receipts Are Quite Light.

Bituminous—At this writing the greatest congestion of coal-carrying vessels ever noted in the history of this port is recorded. At or off the Curtis Bay piers are 53 ships to take on a total of about 300,000 tons of coal, while at the Canton pier are seven or eight other vessels for about 50,000 tons additional. Loadings coastwise and for export by permit are now being pushed, however, and the first part of July has seen recorded a total export loading of around 150,000 tons, of which about 135,000 was cargo coal.

At tide, however, is only a total of around 2,000 cars of coal, with about

the same amount reported running from mines to tide at this writing, so that all the coal in sight at this time can not take care of waiting ships promptly.

Car supply, which had improved at last writing, is again discouraging, despite the strenuous efforts of the General Railroad Committee to find a way to get coal moving more promptly and thus head off the possibility of a renewal of Fuel Administration days. The supply of cars on the Baltimore & Ohio eastern lines at this time is only around 35 per cent, and that on the Pennsylvania and Western Maryland but little better in most of the mining regions they touch.

While Federal investigations continue in this city, there are many sales continued at exceptionally high prices; but prices are over a much wider range. For instance there was a case of purchase to complete a cargo of coal. A price of \$17 was quoted a gross ton f.o.b. piers here, and the purchaser showed that he had just bought some of the same coal from another source (Pool 9) for \$13.75 a gross ton f.o.b. piers. However, he needed the coal and paid the high price because he could get no other fuel quickly. The need of the moment is apparently setting each individual sale.

At the mines the purchaser most of the time offers a price, many producers refusing to quote a price and merely taking the high offer. Coal is actually being sold now, on which the consumer has not been billed and is trusting that he will be charged a fair price. Sales at the mines of best coals have been generally from \$11 to \$13 f.o.b. mines the net ton.

Anthracite—Hard-coal dealers here report that receipts continue quite light. Many consumers are now growing uneasy in the face of the mounting cost of coal on the price at time of delivery plan. Also some are afraid that they may not get coal as desired. For instance the deliveries to city schools have been only about one-third normal, and it is stated that all the schools may not be able to get coal as desired. The coal men here admit that heavy shipments are needed from now until September to fill the deficiency.

Lake

BUFFALO

Conditions Are but Little Changed, Bituminous Being Active and Strong—Anthracite Is Moving at a Good Rate and Lake Shipments Hold—Coke Prices Are Still Mounting.

Bituminous—The complaint of shortage continues, in spite of official reports of heavier mining than last year. Consumers are bidding for coal in a way that makes any weakening of the price out of the question. They are paying practically top prices for country-bank coal, which is often of poor quality.

Bituminous prices are now based on about \$10@10.50 for all grades of coal at the mines. At the same time

most of the coal is selling for much less, by contract. One anthracite shipper is selling steamboat fuel for \$6.30 delivered on board and has done so all the season, by virtue of a contract for Youghiogheny coal. But for that the Lake shipments of anthracite would be much less than they are, for the great problem on the Lakes now is where to get fuel at any price.

Anthracite—The conditions remain as before. Consumers are not satisfied, for as a rule they want their winter's coal now and of course that is not possible. However, a large amount of it has been delivered. Canadian dealers are still numerous here, all asking for coal.

Lake shipments are good and soon the Philadelphia & Reading docks, which have been rebuilding all the season, will be added to the list. For the week the loadings amount to 93,200 net tons, of which 51,100 tons cleared for Duluth and Superior, 32,000 tons for Chicago, 7,200 tons for Fort William and 2,900 tons for Manitowoc. Rates of freight remain at 50c. to Duluth and Fort William; 60c. to Chicago and Manitowoc.

Coke—Jobbers report that they are not able to get 72-hr. foundry for less than \$18.50 at the ovens and some are asking \$19, to which must be added \$2.60 freight to Buffalo. This brings 48-hr. furnace at \$17. Low grades are not moving much. The local iron furnaces are all running strong.

Inland West

UNIONTOWN

Soft Coal and Furnace Coke Prices Move Upward—Car Shortage Continues Acute—Coke Supplies Are Scarce, with Fancy Figures for Free Tonnage.

Prices both for bituminous coal and furnace coke resumed their upward trend this week, a level of \$11.25 and \$11.75 being reached for classified coal; furnace coke moving at \$17.50 and \$18 with at least one offer of \$18.50 ovens, late in the week, not being covered. There are a number of permits out for export coal and the price on such coal advanced during the week from \$10.75 and \$11.25 to the above mentioned maximums.

The car shortage continues acute; more than three score coal mines (large and small) being forced to suspend the last three days of the week because of no cars. Similar measures were adopted by a dozen or more coke plants.

The best placement was made by the Monongahela R.R. which provided both coke and coal operations with a 35 per cent placement; 2,034 coal cars and 1,031 coke cars being received from the Pennsylvania and Pittsburgh & Lake Erie railroads, which supply the Monongahela with cars.

Coke supplies are scarce and the competition is keen to secure what tonnage is made available to the open market. The bulk of the region's mer-

chant-coke output is moving upon contracts which have a basis of \$12 ovens, but fancy figures can be secured for any free tonnage.

While conditions appear quite as gloomy as they are pictured, there is a bit of optimism in the air as operators await the decision of the railroad labor board. Should a satisfactory wage adjustment be made they believe the rank and file of the railroad men will greatly increase their individual efficiency, and do more than anything else to bring the railroads "out of the woods."

MILWAUKEE

Situation Continues Critical—Industries and Utilities Are on Hand-to-Mouth Basis—Rail Movement Gives No Relief and Lake Receipts Are Quite Unsatisfactory.

The coal situation continues unimproved. Orders from individual consumers are piling up, and industrial concerns and public utility plants are working on a hand-to-mouth basis. Cargoes reach the docks daily, but not in sufficient volume to cause an accumulation of stocks at the yards. The rail movement is almost nil. Hundreds of small dealers who rely upon the dock yards for coal find their business at a complete standstill. They get little coal. The bulk of present deliveries is made direct from the docks.

Local coal men are close on the heels of the Interstate Commerce Commission, and if the worst comes and industries are forced to suspend, it will not be because sufficient effort was not made by those interested in supplying the community with fuel. With maximum coal receipts from now on to the close of navigation, Milwaukee will not have coal enough to meet the demands of winter. Receipts by Lake thus far this season aggregate 317,451 tons of anthracite and 466,799 tons of soft coal, a gain of 29,759 tons of the former and a loss of 1,116,906 tons of the latter in comparison with last year's record during the same period. Prices continue unchanged.

COLUMBUS

A Better Car Supply Permits a Greater Production—Demand for All Grades Continues Strong and Prices Continue High—Lake Trade Shows Some Improvement, but Is Far Below Normal.

The priority car order, giving preference to mines as far as open-top equipment is concerned, is causing a better supply of cars to be delivered at all Ohio mines. Operations have been more active and indications point to a better run of cars for the coming two weeks. Operators are taking advantage of this condition, by pushing the output as much as possible and it is hoped that the general condition will be remedied as a result. Demand for all grades is still good and prices continue at high levels.

The buying for steam purposes is one of the features of the trade. Manufacturers, few of whom have any surplus stocks, are using every means to keep their plants in operation. Buyers

have been dispatched to the mines to purchase available tonnage and the price to be paid is a matter of little consequence.

Railroads are taking a larger tonnage, which still further reduces the supply for commercial purposes. Public service concerns are also buying actively and many are trying to accumulate reserves for the fall and winter.

The domestic trade is active as dealers are now in the market for supplies to take care of long standing orders. Dealers are getting anxious and are offering high prices to compete with steam users. Practically no Pocahontas is coming into central Ohio territory as the main supply is going to the seaboard. A considerable tonnage of splint is coming in and sells at high figures.

Dealers are depending largely on Hocking, Cambridge and Pomeroy coals for their supplies. Retail prices continue high and range from \$8 to \$10.50 for Ohio coals and even higher for West Virginia splint.

The Lake trade shows some improvement over a week ago as a larger tonnage is being loaded at the docks of the lower Lake ports. But the season is far behind that of last year with hardly one-fourth of the tonnage moved to date. Reports show that Lake shippers are getting anxious and that there must be especial attention given to the trade from this time on to avoid an acute coal shortage in the Northwest.

Production is slightly better in all of the Ohio districts. The Hocking Valley produced about 65 to 70 per cent during the week and the figures from Pomeroy Bend are about the same. The eastern Ohio field produced about 55 to 60 per cent while Cambridge, Crooksville and Jackson districts had about a 60 per cent run.

Prices of coal used in central Ohio at the mines are:

Hocking lump	\$6.00 @ \$8.50
Hocking mine-run	5.50 @ 8.50
Hocking screenings	5.00 @ 8.00
Pomeroy lump	6.50 @ 9.00
Pomeroy mine-run	6.00 @ 8.50
Pomeroy screenings	5.50 @ 8.00
West Virginia splint, lump	6.75 @ 9.00
West Virginia mine-run	6.50 @ 8.75
West Virginia screenings	6.00 @ 8.50
Pocahontas lump	7.00 @ 9.00
Pocahontas mine-run	7.00 @ 8.75

MIDWEST REVIEW

Car Supply Improves in Illinois and Indiana but Prices Show an Upward Tendency—I. C. C. Continues Open-Top Car Order and Defines What a Coal Car Is—Situation in the Northwest Is Serious and Relief Is Sought at Washington.

There has been no weakening in the coal market during the past few days; in fact, on the contrary, prices on practically all grades are showing an upward tendency. The car supply at the mines in Illinois and Indiana is improving to some small extent, but not enough to relieve the present acute shortage or have any influence on the market.

Usually the mines receive a good car supply on Monday and Tuesday, which tends to ease up the market to

some extent. While the supply on Monday and Tuesday was pretty good, in fact better than the average, there was no sign of a weakening tendency in prices.

Agitation for a better car supply at the mines is the order of the day, and nothing is being overlooked by the coal operators themselves, or by the public, to bring such a situation about. Primarily there is no coal shortage, but a most serious transportation shortage.

DETROIT

Order 7 of I. C. C. Is Welcome, but Might Be More Effective If All of Cars Built for Coal Loading Were Diverted to the Trade—Conference Is Arranged for at Lansing to Plan to Avert the Threatened Shortage.

Bituminous—Representatives of the coal trade in Detroit are quite generally gratified by the action of the Interstate Commerce Commission in extending the operation of Order 7 for an additional 30 days beyond July 21.

The opinion is expressed by some of the wholesalers and jobbers, however, that more effective results would be obtained from the operation of the order if the railroads would divert to the coal trade all cars originally built for that traffic, some of which are now employed in the transportation of other commodities. Unless this is done the dealers fear the supply of cars available at the mines will prove inadequate to move coal in sufficient amount to assure that the needs of Detroit and Michigan generally will be met.

With the purpose of definitely determining the requirements of coal consumers in Michigan during the coming winter and arranging some plan to expedite deliveries, arrangements are being made for a conference in Lansing to be attended by representatives of public utilities, industrial centers and the coal dealers, in the hope that some constructive program can be outlined for bringing relief to the coal consumers of the state.

The public utilities and many of the industrial companies have been unable to get coal in sufficient amount to build up reserves. Many of the utility companies in the state have but little stock on hand or coming to them, despite embargoes which were designed to assist them.

CHICAGO

Demand Is Unprecedented with Wide Range in Selling Prices—Local Public Utility Commission Takes Steps to Insure Better Delivery of Cars to Mines—Coal Will Not Be Reconsigning After Reaching Chicago.

The demand for coal in the Chicago market is unprecedented, with retailers and manufacturers bidding against each other for what little coal is available. From a superficial investigation, however, it appears that both retailers and manufacturers are far better off today than they were some time back, in that they now have some coal on hand.

The Chicago Real Estate Board, acting for owners of apartment houses in this city, had a hearing a few days ago before the local Public Utilities Commission. The apartment house owners claim that hardly 5 per cent of the apartment houses have their winter supply of coal on hand, and they request that the public utility commission takes steps so that coal cars will be delivered in greater numbers to the coal mines.

At this same hearing were some officials of the Illinois Central R.R. who had been summoned to explain why so many empty cars were to be seen lying idle on the various switching tracks and in holding yards. Those who appeared for the railroad replied that coal was coming into Chicago in greater quantities than for the same period last year, but instead of doing Chicago any good the coal was being reconsigned to points beyond.

The railroad authorities blamed the wholesalers for the fact that the yards were congested with loaded coal cars awaiting reconsignment. As the market for coal is so obviously strong it is well understood that there is but little free coal in or about Chicago waiting to be reconsigned.

On the whole, the railroads serving Chicago are in better shape than they have been during the past few months, although conditions are far from normal at present. Practically all of the railroad officials emphasized the point that one of the greatest difficulties in their efforts to expedite coal shipments is the accumulation of freight—coal and otherwise—in the Chicago terminal yards. The Chicago Terminal Committee has just issued an order which prohibits the reconsignment of coal cars after they reach Chicago.

It is said that the Chicago, Burlington & Quincy has taken a step further and will not reconsign coal after it arrives at Galesburg. This step has been taken in order to give the railroads a chance to clean up their yards, as well as to put a stop to promiscuous speculation in coal.

The action of railroad labor has some bearing on the present situation, as it is thought that when the Federal Wage Board makes its award it will have a good effect on labor and stabilize that element which, at the present time is in a very unsettled state.

A wide range exists between the selling prices of local coals. On the spot market screenings are selling anywhere from \$4.75@ \$6.25 per ton f.o.b. mines; mine-run from \$5.50@ \$6.50 and prepared sizes from \$5.50@ \$7.

ST. LOUIS

Fuel Conditions Generally Are Growing Serious—Transportation Shows but Little Improvement—Prices Continue To Advance.

St. Louis proper is not suffering to any great extent for the need of coal, but all manufacturing plants are short, running on a day-to-day supply ahead. Many plants have curtailed the use of

fuel as much as possible and some plants are running short time.

The dealers in and around St. Louis are unable to purchase Standard coal at the prevailing market because the large dealers with contracts can sell coal at a retail price cheaper than the open market Standard mine price. As a result, but little Standard coal is moving for domestic purposes. In the Standard field commercial coal mines work about 1½ to two days commercial and railroad mines get four and 4½ days a week.

Mt. Olive coal is in good demand for the domestic trade, but the supply is one-fourth of what it should be. The Carterville supply for St. Louis is one-tenth of what it should be.

These conditions, due to the fact that no anthracite, West Virginia smokeless or Arkansas is available, present a situation more serious than St. Louis has had to face in the memory of any local coal man. About 20 per cent of the coal that is usually stored at this time of the year has been put away.

Prices here range from \$3 on contracts to \$4 for local shipments. Out of town shipments, such as Chicago, are bringing \$5 for lump, egg, nut, mine-run and screenings. Shipments to Detroit and Canada bring as high as \$6 and better for all grades.

The Mt. Olive field continues to take care of its regular trade at from \$3@ \$3.75 on all sizes and getting about three days a week on commercial.

Market conditions are satisfactory on most roads; the exception being the Missouri Pacific. Coal from this district has been selling at circular prices; Zeigler coal goes at \$5.50, whereas other coal is selling at from \$3.80@ \$4, with the exception of a few operators who are getting between \$5 and \$7 for northern shipment.

Somewhat similar conditions prevail in the Duquoin field. The running time last week was from three to four days; mines are neglecting old contracts and orders and are taking care of Canadian shipments at prices of \$6 to \$7.

There are no changes in retail prices, although many dealers in St. Louis are refusing to take orders for anything but Standard and Mt. Olive, and at a price prevailing at the time of delivery.

South

BIRMINGHAM

Demand Is Heavy but Sales Are Restricted to Small Spot Supply—Strikes Offset Benefits of Improved Car Supply and Production Shows Decrease—Merchant and Domestic Mines Suffer Mostly from Labor Troubles.

Operations at domestic and merchant mines in this district continue to be badly crippled by local strikes, numbers of mines in Walker, Bibb, Tuscaloosa and in the western section of Jefferson County being totally or partly closed. Indications of the past few days, how-

ever, point to an improvement in this respect, as the output at several of these mines is being gradually increased. Labor generally is offering no assistance or co-operation in increasing coal production.

Transportation conditions are good on the Southern and Frisco lines and mines are getting all the cars needed. The supply on the Louisville & Nashville is around 45 per cent of requirements and mines dependent on this road for equipment are losing some time due to lack of cars for loading.

The market is strong and the demand heavy but the tonnage being sold is confined almost entirely to the spot trade and comes from the small mines not holding contracts. Sales agencies and jobbers have little coal to offer, the entire output from all the larger mines being applied against contracts where deliveries are badly in arrears, and quotations are suspended.

Spot coal is bid up to high figures, prices reported ranging from \$6.75 to \$8.50 at mines. There is not much to be had at any figure. Quite a number of domestic mines are involved in the strike trouble and the receipts of this grade of coal are entirely inadequate to meet daily sales and enable an accumulation of stocks.

LOUISVILLE

Car Supply and Prospects Generally Are Better in Kentucky Fields—I. C. C. Orders Are Expected to Bring About Further Good Results—Prices Are Fairly Firm, Although Increased Production Should Result in Lower Market.

Better car supply, and better prospects generally in the Kentucky Fields. Prices fairly firm on all grades, although increased production is expected to result in falling prices.

It is claimed that there has been an increase of about 10 per cent in car supply during the month, and that mines of Kentucky are now getting a 50 per cent car supply, with prospects of improved supplies as a result of extension for 30 days longer of the I. C. C., ruling, placing a ban on open-top cars except for transportation of coal.

Leading operators and traffic men claim that if this rule is continued and enforced it will result in empties finding their way back to mines which have not been handling coal for a long time. General prospects are for better car supply, and with this car supply it is claimed production will begin to catch up with demand, which will stop price bidding, and enable competition to level prices to something like normal.

It is reported that demand is already showing the effect of larger shipments, and that, with the exception of gas coals and the best grades of steam coals, there is not quite so keen a demand. Furthermore, operators are beginning to offer coal, instead of the buyer going to the operator.

It is claimed that a buyer's market has a good chance of being re-established shortly if car supply reaches a 60 to 70 per cent level in the next two

or three weeks. However, it is also claimed that, in view of the light domestic stocking, lower prices will bring a big immediate shipment demand from retailers, which will have a tendency to hold the market.

In event of domestic demand becoming as strong as is predicted for the fall, then as soon as block coal gets down to \$4 or \$5 at the mine many mines will have a little delay in getting their screens back in shape, as many of them have not been screening for weeks.

Retailers' stocks are quite low as a whole, and no buying is being indulged in on the present market, nor is there any prospect until conditions change.

The strikes in West Virginia have not had much effect in eastern Kentucky, and have made such little headway in West Virginia that they are not being considered seriously by operators along the Kentucky border.

Quotations show: Eastern Kentucky mine-run, gas coal, \$8.75@9.50; non-gas, \$8.50@9. Western Kentucky lump, \$5.75@6; mine-run, \$5@5.25; nut and slack, or pea and slack, \$4.50@5.

Canada

TORONTO

Anthracite Situation Is Fairly Satisfactory—Bituminous Continues Scarce and Prices Are Fluctuating.

The situation as regards anthracite shows some improvement and present conditions are fairly satisfactory, shipments coming forward freely. Owing to the fact that consumers placed heavy orders early in the season dealers are generally considerably behind in deliveries, but are gradually overtaking

orders in arrears. Announcements by the Railway Board as to arrangements for insuring a supply have had a reassuring effect and no serious shortage is anticipated. Bituminous continues scarce and industrial plants have in many cases had to curtail their output and are only kept in operation by a hand-to-mouth supply. Consumers have so far been unable to lay in stocks ahead. Dealers are disposed to be skeptical as to the feasibility of the proposal to procure supplies from the Albert mines, regarding the cost of the long haul as prohibitive.

Quotations per short ton are as follows:

Retail:	
Anthracite egg, stove, nut and grate.....	\$15.50
Pea.....	14.00
Bituminous steam.....	15.00@16.00
Domestic lump (nominal).....	18.00
Cannel.....	16.00
Wholesale f.o.b. cars at destination	
Three-quarter lump.....	\$14.00@16.00

These prices vary from day to day.

Exports of Coal and Coke By Customs Districts

Domestic exports of coal and coke from the United States by customs districts during May, 1920, according to statistics supplied by the Bureau of Foreign and Domestic Commerce were as follows:

	Anthracite (Tons)	Bituminous (Tons)	Coke (Tons)
Maine and New Hampshire.....			58
Vermont.....	1,703	3,555	58
Massachusetts.....	104		
St. Lawrence.....	109,961	79,931	808
Rochester.....	63,664	133,879	437
Buffalo.....	94,459	95,473	2,989
New York.....	1,979	15,184	1,393
Philadelphia.....	1,664	199,909	2,649
Maryland.....		424,614	5,834
Virginia.....		940,408	
South Carolina.....		66,475	
Georgia.....		10,820	
Florida.....	178	18,424	
Mobile.....		736	
New Orleans.....	2,946	39	79
Sabine.....		472	651
San Antonio.....	27	4,551	4,596
El Paso.....	77		1
San Diego.....	7		
Arizona.....		2,016	7,015
San Francisco.....			40
Washington.....	127	105	
Alaska.....		669	182
Dakota.....		4,811	2,270
Duluth and Superior.....		74,183	9,923
Michigan.....	51	323,843	3,072
Ohio.....	250		22
Porto Rico.....			
Total.....	277,197	2,400,821	42,077

BUNKER COAL

Customs Districts:	Tons
Maryland.....	91,603
New York.....	220,734
Philadelphia.....	49,236
Virginia.....	253,405

Coal and Coke Exported from New York During May

Exports of coal and coke through the Port of New York took a big jump in

Anthracite.....	
Bituminous.....	
Coke.....	
Totals.....	
Anthracite.....	
Bituminous.....	
Coke.....	
Totals.....	

May of this year when compared with the shipments in the corresponding month of 1918 and 1919, but show a decrease in tonnage when compared with May, 1917, although the value of the shipments in May last was more than \$12,000 greater than the value of the coal and coke shipped in May, 1917. In that year there were 19,609 tons shipped valued at \$178,537 while in May of this year the shipments were 18,556 tons valued at \$190,833.

The following tabulation shows the countries to which coal and coke was sent with the tonnages shipped:

ANTHRACITE				
	1917	1918	1919	1920
Brazil.....	168	482	352	16
Canada.....	10,621	3,341	2,431	1,243
Cuba.....	1,396	70		125
Newfoundland.....	1,645	501	200	
San Domingo.....	2,301		589	50
Other countries.....	583	50	29	545
Totals.....	16,714	4,444	3,601	1,979
BITUMINOUS				
	1917	1918	1919	1920
Austria.....				5,000
Brazil.....		7,437		487
France.....				4,666
Italy.....			50	1,500
Norway.....				2,700
San Domingo.....	646	575		50
Other countries.....	349	105	490	791
Totals.....	995	8,117	540	15,184
COKE				
	1917	1918	1919	1920
Chile.....	1,258		40	56
France.....		1,540	405	
Panama.....	240	208		
Other countries.....	402	405	181	1,237
Totals.....	1,900	2,153	626	1,393

Comparison of the shipments in May in the four years shows the following:

1917		1918	
Tons	Value	Tons	Value
16,714	\$133,327. 00	4,444	\$30,158. 00
995	7,147. 00	8,117	58,118. 00
1,900	38,063. 00	2,153	30,868. 00
19,609	\$178,537. 00	14,714	\$119,144. 00
1919		1920	
Tons	Value	Tons	Value
3,601	\$29,402. 00	1,979	\$21,263. 00
540	4,517. 00	15,184	\$41,316. 00
626	11,184. 00	1,393	28,254. 00
4,767	\$45,103. 00	18,556	\$190,833. 00

More than 15,000 tons of bituminous coal were sent to other countries through the Port of New York during last May of which amount Austria got 5,000 tons, valued at \$41,500, and France 4,666 tons, valued at \$55,708.

Freight Rates to Europe Easier

W. W. Battie & Co.'s Coal Trade Freight Report announces that since the previous report a few steamers have been chartered each day for export coal, but the great difficulty is to secure cargoes, as steamers are reported to be plentiful.

Freight rates to European ports are a trifle easier, but to South American and West Indian ports there has been very little change.

Freight rates by steamer are as follows:

		Tons Dis- charged Daily
Malmö.....	About 16.50	1,000
Copenhagen.....	About 16.50	1,000
Gothenburg.....	A. out 16.50	1,000
Antwerp/Rotterdam.....	13.50/14.00	1,000
Hamburg.....	About 15.00	1,000
French Atlantic ex. Rouen.....	14.00/14.50	700
Algiers.....	16.00/16.50	800
West Italy.....	About 16.00	1,000
Marseilles.....	About 16.00	1,000
Piræus.....	About 17.50	1,000
Trieste/Venice.....	About 17.50	1,000
Port Said.....	17.50/18.00	1,000
Constantinople.....	About 18.00	500
Gibraltar.....	About 15.50	1,000
Pernambuco.....	About 13.00	500
Bahia.....	About 13.00	500
Rio.....	11.50/12.00	1,000
Santos.....	12.00/13.00	600
Buenos Aires or Montevideo or La Plata.....	11.50/12.00	1,000
Para.....	About 13.00	500
Rosario.....	About 13.00	750
To Nitrate Range.....	About 9.00	750
Havana.....	About 6.00	500
Sagua or Cardenas.....	8.00/8.50	300
Cienfuegos.....	About 7.50	500
Caibarien.....	About 8.00	300
Guantanamo.....	About 7.50	500
Manzanillo.....	About 9.00	300
Bermuda.....	About 6.50	300
Bermuda p. c. and dis. free		
Kingston.....	7.50/8.00	400
Barbados.....	About 9.00	500
St. Lucia.....	About 9.00	500
Santiago.....	About 7.50	500
Port of Spain, Trin.....	About 9.00	500
Curacao.....	ASout 9.00	500
Free p. c. Curacao		
Demarara.....	13.00	400
St. Thomas.....	About 8.00	500

All above rates gross form charter.

News From the Coal Fields

Northern Appalachian

PITTSBURGH

Coal Moves Freer, Due to Order of I. C. C.—Spot Prices Are Firm, but May Be Influenced by Offerings of Southern Ohio Coal.

It is now stated frankly by both producers and consumers that there is a better movement of coal, growing out of Order 7, now continued for another 30 days, from July 21, with the proviso that it is not to include flat-bottom gondolas with sides under 36 in. inside measurement, for the benefit of the steel trade.

Thus far the heavier movement has had no really noticeable effect on spot prices, which have been substantially as high during the past week as at any time. The market is likely to respond to psychological influences by prospective buyers being less rash in their bidding, even though their wants may not be greatly altered.

Open orders given to brokers have had something to do with the high prices, the consumer being in a hurry and giving the broker a high limit, and with coal so scarce the broker is encouraged to bid his limit to make sure of getting coal.

The prospective advance in freight rates, probably effective Sept. 1, encourages buyers for stock to be somewhat freer in making purchases at this time than they otherwise would be. An influence in the other direction is the offering of some southern Ohio coal to consumers normally tributary to the Pittsburgh district.

The spot market is quotable at about \$10@ \$11 for steam coal and \$10.50@ \$11.50 for gas and byproduct, per net ton at mine, Pittsburgh district.

FAIRMONT

Congestion Is Eliminated and Car Supply Improves — However, at Times There Were Many Idle Mines — Railroads Take 65 Per Cent of Loadings — Eastern Shipments Are in Excess of Western Tonnage, but Little Coal Is Exported.

An unusually large supply of cars in the Fairmont region early in the week ended July 10 was not the harbinger of any marked improvement in the car supply as had been expected, for after the accumulation had been worked off the car supply situation was back in its old rut.

While the supply of empties was erratic, nevertheless it was on a higher level than during the previous week owing to the fact that congestion had been eliminated. Still the shortage of

cars was such as to force many mines and miners into idleness during the course of the week. When mines did resume operations after the Monday holiday there were in excess of 2,000 cars on the Monongah division of the Baltimore & Ohio R.R. alone.

Some of the congestion brought about by strikes on the Baltimore & Ohio had been relieved and the road was in a fairly good position to move freight. At the same time empties had begun to pour in from eastern points and particularly from the piers. However, by Friday cars were so scarce there were 110 mines in idleness on the Monongah division of the Baltimore & Ohio.

Although it had been hoped that there might be a fairly adequate supply of cars on the Monongahela R.R. even in that field, following a shut-down of two days for the mines, cars were extremely scarce on Tuesday, Scott Run mines securing a small supply. As a matter of fact, the larger portion of cars on the Monongahela were assigned for railroad-fuel loading.

Eastern shipments were in excess of western tonnage in the proportion, at times during the week at least, of ten to seven. Of the coal moving eastward, but little was for tidewater and consequently exports were comparatively small. So far in northern West Virginia the railroads have not abated the nuisance of the assigned-car supply to any appreciable extent.

CONNELLVILLE

Coke Market Is Slightly Higher — Foundry-Coke Demand Exerts an Influence — Byproduct Ovens Are Doing Well, but Have No Surplus to Offer.

The Connellsville market for spot coke has gone still higher and thus another new historic record is made, with spot furnace sold at \$18 and spot foundry at \$19, with perhaps a few transactions in foundry at still higher figures. In the week containing Independence Day, production in the Connellsville region lost about half a day, as compared with the preceding week, and as the blast furnaces do not observe holidays this may have had an influence.

Usually the prompt market declines after Independence Day, through consumers having gone too far in making sure of a supply, but this year proves to be exceptional, no one having had a chance to buy more coke than needed.

Foundry coke has had an influence, as the coke cost is such a small part of a foundry's expense that price is altogether secondary, and as quality is now also secondary, blast-furnace coke being acceptable to many foundries, the foundry-coke market supports the furnace-coke market.

The byproduct ovens are working fairly well but apparently have no surplus to offer in the market, otherwise the Connellsville market would certainly decline.

The spot market is quotable at about \$18 for furnace and \$19 for foundry, per net ton at ovens. Contract coke is practically nominal at \$12 for furnace and \$12@ \$13 for foundry.

The *Courier* reports production in the Connellsville and Lower Connellsville region in the week ended July 10 at 162,390 tons, a decrease of 15,900 tons.

Estimates of Production

FROM THE WEEKLY REPORT OF THE GEOLOGICAL SURVEY

BITUMINOUS COAL.

	1920		1919 (a)	
	Week	Calendar Year to Date	Week	Calendar Year to Date
June 26b.....	10,556,000	252,073,000	9,470,000	210,640,000
Daily average.....	1,759,000	1,663,000	1,578,000	1,389,000
July 3b.....	10,293,000	262,366,000	7,459,000	218,099,000
Daily average.....	1,716,000	1,665,000	1,492,000	1,393,000
July 10c.....	9,803,000	272,170,000	10,225,000	228,324,000
Daily average.....	1,961,000	1,674,000	1,704,000	1,404,000

ANTHRACITE

	1920		1919 (a)	
	Week	Calendar Year to Date	Week	Calendar Year to Date
June 26.....	1,820,000	41,912,000	1,855,000	38,655,000
July 3.....	1,730,000	43,642,000	1,394,000d	40,049,000
July 10.....	1,500,000b	45,141,000	1,849,000	41,898,000

BEEHIVE COKE

United States Total			
Week Ended	July 12, 1919	1920 to Date	1919 to Date c
July 10	363,000	375,000	325,000
July 3	375,000	325,000	11,269,000
July 10	375,000	325,000	10,098,000

(a) Less one day's production during New Year's week to equalize number of days covered for the two years. (b) Revised from last report. (c) Subject to revision. (d) Five-day week because of Independence Day. All figures in net tons.

NORTHERN PAN HANDLE

Empties Increase, but Labor Shortage Limits Production—Holiday Interferes with Output—Credit Is Given to Order 7 of I. C. C.

An increase in the number of empties in the northern Pan Handle of West Virginia marked the course of events in that field during the week ended July 10. The increased supply combined with general idleness in the mines on the fifth when few miners reported for duty tended to make open tops fairly plentiful during the balance of the week. However, labor shortage kept down production somewhat.

Credit was generally given by producers to the beneficial influence of Order 7 of the Interstate Commerce Commission. With railroad lines less congested than had been the case at the outset of the month, coal was moved somewhat more expeditiously, and that also tended to help to swell the inward flow of empties.

Just as there was improvement in the Pan Handle, so in the eastern Ohio fields cars were rather easier to secure, although similarly it is doubtful if there was any increase in production. But for the holiday, additional transportation facilities would have undoubtedly been conducive to an increased supply of coal.

Middle Appalachian**NORTHEAST KENTUCKY**

Holiday Reduced Output of the Field—Demand Is Strong, with but Little Free Coal—Movement Is North and West.

The Fourth of July holiday had the effect of reducing the tonnage of coal mined in the northeast Kentucky field in the week ended July 10. Otherwise production would have been about the same as for the previous week. As it was the output averaged only about 46 per cent—a decrease of 12,000 tons. It was unfortunate that when cars were rather more plentiful than no marked gains were made in northeast Kentucky.

There was no diminution in the demand and producers found it impossible to meet such a market either for gas, byproduct or steam coal. Indeed they had all they could do to look after contracts, so that free coal was very scarce indeed.

Movement of northeast Kentucky coal was mostly to the West and North, only a small proportion of the output of the field moving to eastern points.

KANAWHA

Kanawha Output Is Far Below That of Previous Week—Holiday Season Cripples Production—High Volatile Being Embargoed to Tide, Coal Goes West and to the Lakes.

Production in the Kanawha field for the week ended July 10 was far below that of the previous week, a number of

causes bringing about such a situation. First and foremost was the holiday at the very beginning of the week.

On Tuesday there were over 1,000 cars available, but it was only possible to load a portion of them, miners being extremely slow about getting back on the job again. And so it ran throughout the week; fully 1,000 cars, or approximately 50 per cent less being loaded during the week than had been the case during the preceding period.

There was also a very poor supply throughout the week on the Kanawha & Michigan R.R., so that production at mines on the north side of the Kanawha were affected quite appreciably.

A fairly plentiful car supply during the week was rather inopportune in view of the holiday and the fact that Kanawha coal was once again under embargo, insofar as tidewater shipments were concerned. As a consequence there was larger western movement, part of which went to the Lakes.

Quotations on spot coal, or rather offerings for spot coal from the Kanawha, ranged from \$8.50 to \$10 a ton and better, buyers even offering more in some cases.

LOGAN AND THACKER

Logan Loadings Were Cut Down 35,000 Tons for the Week, Due to Holiday—Williamson Field Shows Up Fairly Well Considering Efforts of Labor Agitators.

In the high-volatile Logan and Williamson fields less coal was loaded than during the previous week chiefly because of a holiday, although in the Williamson field production was also cut down because of the strike there. In common with other high-volatile fields, however, it is believed that more cars were available than during the previous week, but miners were slow in getting back to work again after their brief holiday respite.

Logan loadings reached only about 165,000 tons during the week ended July 10, the hole made by a general suspension of activities on Monday being sufficient to reduce the output 35,000 tons or more below that of the previous week. But for that holiday there might have been a slight increase since empties were fairly plentiful on the Chesapeake & Ohio.

Even less coal was moved eastward than during the previous week that being one of the results of a tidewater embargo which lasted over into the week beginning July 12. No high-volatile coal had been shipped to tidewater terminals of the C. & O. during the week ended July 10, and it was believed that an effort was being made to stop exports for the time being by embargoes, the effect being to augment western tonnage. Prices showed no tendency to reach any lower levels.

In the Williamson field, on the days succeeding July 5, there was a fairly large production, considering that the United Mine Workers were claiming an entire suspension of operations in the

field. Official figures show that 867 cars of coal were produced and shipped for the week. Pond Creek mines do not appear to have been affected so far by the strike.

VIRGINIA

Production Dropped About 50,000 Tons for the Week—Large Output Is Predicted for Following Period—Prices Are Firm and Demand Strong.

Reduction in the production of the mines in southwestern Virginia was the sequence to a holiday. As mines had only five days in which to produce coal, the output for the various fields dropped from 151,000 tons to 102,000 tons, a loss of nearly 50,000 tons, the holiday of course not being altogether responsible. Indeed of the total loss of 68,000 tons, 43,500 tons were lost because of inability to secure cars, the balance of 25,000 tons being lost through a shortage of man power.

It is estimated that production reached about 60 per cent of potential capacity while the mines were actually in operation during the week. At the end of the week operators were rather optimistic of a larger output during the week beginning July 12 since there was no holiday in prospect and cars seemed to be coming in at a larger rate.

In fact it was felt there might be a supply equivalent to about 85 per cent of requirements; although in making such an estimate cars to be assigned were included, a very large proportion of the cars received in fact being assigned.

There was little change in prices in the field during the week. Certainly there was no decrease since the demand continued strong with no increased production to meet it.

POCAHONTAS AND TUG RIVER

Many Mines Work Five Full Days in Week Ended July 10—Tug River Holds Its Own on Output—Pocahontas Produces 330,000 Tons—Shipments Go East.

Production appears to be steadily on the increase in Norfolk & Western territory, at least in the smokeless fields reached by that road, the Williamson field constituting, of course, an exception. Additional equipment cut down car-shortage losses to an appreciable extent.

The observance of a holiday on July 5 tended to cut down the week's production as a whole, although during the other five days of the week, Monday's loss was to some extent overcome. Service Order is expected to increase output.

Many mines worked five days on a full-time basis. Of course the lack of necessity for so many cars in the Thacker field had a tendency to make cars somewhat more plentiful in the Pocahontas and Tug River fields, but there was undoubtedly a larger number of incoming empties.

Coal loading in the Tug River field

for the week ended July 10 was 78,650 net tons, or an increase of 200 tons over the previous week. Notwithstanding the holiday, output in the field ranked with some of the best production periods of the present year. Of course Tug River mines secured the benefit of cars which under ordinary circumstances would have been distributed among Thacker mines.

If mines in the Pocahontas region failed to produce as much coal as was the case during the week ended July 3, it was largely because of the holiday on July 5, production reaching about 330,000 tons against which there was a car-shortage loss of only 67,000 tons. A month ago there had been a car-shortage loss running well up to between 200,000 and 300,000 tons. Shipments from the field were largely to the East.

NEW RIVER AND WINDING GULF

Production Nearly Equals That of Previous Week—Tide Is Again Opened to Smokeless—Gulf Mines on Virginian Work Five Days, C. & O. Operations Only Three—Half of New River Tidewater Shipments Are Exported.

More coal was loaded in both the New River and Winding Gulf fields during the weekly period ended July 10 than might have been imagined in view of a holiday which gave the mines only five days in which to produce coal during the week; production did not fall far short of that for the preceding week, cars being somewhat more plentiful in both fields.

The car supply on the Chesapeake & Ohio was in excess of 50 per cent while on the Virginian it was even better. There was a better flow of empties both from the East and from the West.

The opening of tidewater piers to smokeless coal again during the week also tended to stimulate shipments to the East; at the beginning of the following week another embargo was imposed, no doubt to check the flow of coal to foreign ports.

In the Winding Gulf field, during the last five days of the week ended July 10, mines supplied by the Virginian Ry. having a full supply for each day were able to work to full time capacity, thus materially increasing the output of the field as a whole. Mines on the C. & O. were not quite so fortunate, being in full operation for only about three days out of the week. The pooling of equipment materially strengthened the supply of empties.

Mines in the New River field largely succeeded in making up for the idleness on July 5, during the balance of the week, loading about 120,000 tons of coal.

As the low-volatile embargo to tide had been lifted on the third, it was possible for New River mines to proceed with tidewater shipments; and it was estimated that probably half of the tidewater consignments were for export. Consequently western shipments tended to decrease.

Western

SEATTLE

Industry Feels the Shortage of Fuel Oil—Washington Coal Mines Will Be Busy, and Labor Is Scarce—Summer Trade Has Developed as Result of Coal Dealers' Campaign—Prices Hold.

The shortage of fuel oil in the Northwest, which promises to continue for the balance of the year, has raised havoc with industry depending upon this fuel, and wholesale conversion of oil burners to coal burners is being undertaken in many plants. Particularly is this true of the steamships, many of which have been threatened with a tie-up as a result.

The shortage of fuel oil, coal operators are confident, is going to add considerably to the production of Washington coal mines this year, many being doubtful whether the mines can meet the demand which has so suddenly been thrust upon them. Labor at this time is scarce and there is little possibility that at any time during the year will it be adequate.

The campaign of coal dealers and operators in Northwestern cities recently, urging the consumer to place his winter's contracts now, has resulted in the development of considerable summer trade, the experience of the last two winters having proved a bitter lesson to those who delayed ordering their winter's supply of fuel until the supply was wholly inadequate to care for the demands.

Prices have not made any material advance recently. The latest quotations are as follows: Newcastle, lump, \$7.90; Black Diamond, mixed, \$8; South Prairie, mixed, \$8.10; Newcastle and Issaquah, pea, \$6.20; Carbonado, mixed, \$8.20; Bellingham, nut, \$8.40; Carbonado, semi and nut \$11.80@ \$12.40.

Canada

VICTORIA

Shortage of Coal Is Predicted for Next Winter on American Continent—Some Factors Entering Into the Problem Are Noted—Local British Columbia Conditions Are Outlined.

G. W. Bowen, vice president and managing director of the Canadian Western Fuel Co., predicts that there will be a scarcity of coal all over the American continent during the winter of 1920-21 and attributes present conditions in the United States in this respect to the transportation problem. The increased demand for coal locally he explains by the shortage of oil and the greater population to supply.

The cost of production would govern prices, oil shortage and other contingencies having nothing to do with the matter. Discussing the latter question

he pointed to the fact that his company was engaged in prospecting for coal, that what might appear to be a good body at the outset possibly would peter out on development; that in the Nanaimo mines not more than 25 per cent of those employed actually were engaged in the production of coal, so that the average output of coal per day per person would not run to more than a ton and a half.

The profits of the mines were not as great now as they were some years ago when coal was cheaper on the market. Little coal was being shipped from Nanaimo to the United States, whereas a few years ago the bulk of the output went to San Francisco, Cal. Now practically the only coal going south of the line was that required to fill small contracts with Seattle, Wash., dealers.

NOVA SCOTIA

In order to supply the local, Canadian and overseas demand for coal the Dominion Coal Co.'s output will have to be increased to at least 20,000 tons a day, and orders to this effect are said to have gone forth.

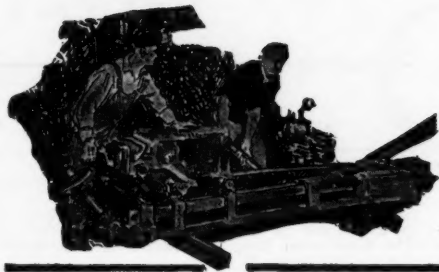
During the past three years the daily output at all the collieries has seldom passed the 12,000-ton mark. To cope with the present demand the Dominion company will have to open up more mines and contemplates the development of four additional openings in the near future. The outputs at all the collieries will be increased to some extent.

One of the new coal mines, it is stated, will be located in the vicinity of Dominion No. 1 colliery. Another new colliery will be started at Quarry Point and it is quite possible that operations there will begin within the course of a few weeks.

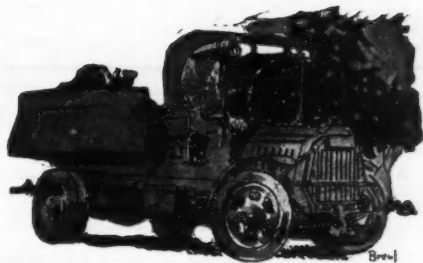
Where the other collieries are to be located has not been stated. Possibly one will be started in the vicinity of the O'Neil Point shaft, and another at Port Morien. The new colliery at Morien should be producing coal in quite a short time. Since the Hub stopped production three new collieries have been started—Nos. 17, 24 and Port Morien. Operations at the Port Morien mine are being pushed, and the officials plan to have the colliery producing coal within the next two months.

Alaska

At Bering Lake the construction of a motor truck road from the coal miles of the Bering River Coal Co. to Bering Lake, where the coal will be placed on sea-going barges and towed to local Alaskan markets, means that British Columbia coal is being displaced in Alaskan markets, according to advice received by the Alaskan Bureau of the Chamber of Commerce recently. The Bering River Coal Co. has spent about \$200,000 in development work and is reported to have opened up a number of beds of high-grade coal.



Mine and Company News



ALABAMA

Birmingham—The Imperial Coal & Coke Co. has increased its capital stock from \$120,000 to \$300,000. This company operates the Bradford mines in the northern portion of Jefferson County on the Black Creek seam. The capital stock of the Majestic Coal Co. is also increased from \$40,000 to \$240,000. This company owns the Majestic mines, on the Black Creek Seam, in Jefferson County. Both companies are owned and controlled by the Morris Bush interests, with head offices in Birmingham, Mr. Bush being president of the corporations as well as president of the Alabama Byproducts Corporation. The major portion of the output from these mines is consumed at the byproduct plant near Boyles.

The petition of the Corona Coal Co., on which a temporary restraining order was issued in the Circuit Court of Jefferson County against the Southern Ry. for alleged discrimination and preferential treatment in the matter of car supply, has been taken to the U. S. Circuit Court for final hearing looking to the dissolution of the injunction or its permanent establishment. No date has been set for the hearing.

ILLINOIS

Carlinville—Macoupin County now has over 200 cars per day shipped from its mines compared to two years ago when it was practically unknown to the coal trade. Coal men have predicted that within the next few years Carlinville (the county seat) will be one of the most important mining centers in the central part of the state. This is due mainly to the efforts of the Standard Oil Co., which has recently completed two large and up-to-date collieries near this city. The Carlinville Coal Co., also improved its mine in many ways recently. To show how the coal is moving from this new mining center, there was recently over 1,000 cars loaded with coal and tied up between Carlinville and Springfield, awaiting to be moved to their destinations.

Duquoin—Coal leases covering thousands of acres of land in Somerset and De Soto townships, south of here, are now being taken up by Dowell & Lafont of this city. All of the operations have not been made public as yet, however, it is stated that some of the leases are being taken out under the Midland Coal Co., and their tracts will be near the De Soto mine now in operation. Dowell & Lafont (coal-land dealers) were largely responsible for the locat-

ing of the large Kathleen mine, owned by the Union Colliery Co., of St. Louis, the mine being located at Dowell, four miles south of here, and named after Mr. Dowell of the firm.

INDIANA

Clinton—The last payday at the coal mines in the vicinity of this place, was one of the best for several months, the total payroll being about \$500,000 for two weeks. The mines in this section now are operating about four days a week.

Indianapolis—E. A. Ogle, of this place, who recently purchased the Kimball-Pocahontas Coal Co. and the Cirrus Coal Co., has announced the consolidation and reorganization of these operations, which are located in McDowell County, W. Va. The new company is to be known as the By-Products Pocahontas Coal Co. Mr. Ogle represents a big coal interest in Indiana.

KENTUCKY

White City—Announcement has been made that the mines and two stores of the Kingston Coal Co., at this place, a few miles south of Evansville, Ind., have been sold to the Hart Coal Co., composed of Brent Hart, H. H. Holman and W. V. Meers. The consideration was approximately \$500,000. The deal was completed at Chicago. The mining property is regarded as one of the best in western Kentucky. The new company will be incorporated for \$500,000 and Mr. Meers is slated to be president.

Ashland—The Porter Mining Co., recently organized, is arranging for the erection of a tippie and the installation of considerable mining machinery at properties secured recently from the Beaver Creek Consolidated Coal Co. The company plans for an output of close to 2,000 tons a day. S. S. Porter is treasurer and general manager.

Louisville—The Louisville Gas & Electric Co., is planning the rebuilding of its steel coal tippie at Echols recently destroyed by fire. The company's power plant destroyed at the same time, will also be rebuilt.

MARYLAND

Baltimore—The new coal pier of the Western Maryland Ry., at Port Covington, construction of which has been commenced, has been designed to replace the former coaling pier of the company in this district, destroyed by fire. The new pier will be 74 ft. wide and 792 ft. long, and will be electric-

ally-operated with a capacity of 40 carloads an hour. The structure with equipment is estimated to cost about \$1,000,000.

OHIO

Cambridge—The State Industrial Commission has revoked the right of the National Coal Co., one of the largest operators in the Guernsey County field, with headquarters at Cambridge, to carry its own liability insurance for employees. The authority to engage in this line was granted the company in 1917; complaints from employees regarding negligence on the part of the company caused the commission to set a date for a hearing of the matter; it is said that this hearing was entirely disregarded by the company, causing immediate revoking of exemption from carrying state insurance. It is further stated that the case will be carried to the Supreme Court for a decision.

PENNSYLVANIA

Altoona—The Old Colony Coal Mining Co. has been organized at a capitalization of \$500,000 with Lawrence M. Ryan of Altoona as manager of the mining operations. The plant is located at Hooversville, Somerset County. Offices will be located in Boston and New York, with Mr. Ryan directing the mines from this city. Hooversville is on the Baltimore & Ohio R.R. The mines will be electrified. Mr. Ryan, the new manager, is general manager of the Cambria-Moshannon Coal Co., with offices in the Altoona Trust building. He recently sold his interest in the Heverly Coal Co. to H. B. Swope, of Madera.

Pittsburgh—It is stated that J. G. Patterson of Pittsburgh, Pa., has transferred 8,000 acres of coal land in Morgan Township of Greene County, Pa., to the Rainey interests, and information is also to the effect that the sale price was about \$3,000,000.

WEST VIRGINIA

Beckley—The McQuail interests have purchased E. E. Hines' holdings in the Laurel Smokeless Coal Co., and from E. C. Taylor, the Fire Creek Smokeless Fuel Co. Both of these properties are on the Stone Coal Branch of the Virginian Ry.

Williamson—The Williamson Coal & Coke Co. is planning for improvements and extensions to its plant, including the installation of machinery for increased production. The company now has a capacity of about 30,000 tons per month. A. H. Land heads the company.

Recent Patents

Hoist Control. Alexander J. Nicht, Jr., Milwaukee, Wis., assignor to Allis-Chalmers Manufacturing Co., Milwaukee, Wis., 1,340,240. May 18, 1920. Filed Jan. 30, 1914. Serial No. 815,841.

Power Shovel. Charles A. Pratt, Chicago, Ill., assignor to Goodman Manufacturing Co., Chicago, Ill., 1,340,498. May 18, 1920. Filed June 9, 1913. Serial No. 772,521. Renewed Oct. 10, 1919. Serial No. 329,889.

Mining and Loading Machine. Edmund C. Morgan, Chicago, Ill., 1,340,731. May 18, 1920. Filed Aug. 4, 1913. Serial No. 782,766. Renewed June 17, 1918. Serial No. 240,524.

Coaling Device. Ysbrand Brouwers, Wageningen, Netherlands, 1,340,819. May 18, 1920. Filed Oct. 21, 1919. Serial No. 332,340.

Coke-Oven Plant. Carl Still, Recklinghausen, and Carl Wessel, Borbeck, near Essen, Germany; Wessel assignor to Still, 1,340,990. May 25, 1920. Filed May 8, 1915. Serial No. 26,852.

Coke Oven. Henry W. Buhler, Boston, Mass., 1,341,257. May 25, 1920. Filed Jan. 24, 1917. Serial No. 144,169.

Electric Welding Device. Wm. P. Bovard, Mansfield, Ohio, assignor to The Ohio Brass Co., Mansfield, Ohio, 1,341,293. May 25, 1920. Filed Oct. 24, 1919. Serial No. 332,929.

Safety Device for Mine Cages. Slave Peskolich, Butte, Mont., 1,341,864. May 25, 1920. Filed April 21, 1920. Serial No. 375,906.

Skip for Hauling Coal. David Lloyd Gibson, Parnell, Auckland, New Zealand, 1,342,018. June 1, 1920. Filed Jan. 27, 1920. Serial No. 354,343.

Pulverized-Fuel Feeder. Lawrence S. Schmidt, Pittsburgh, Pa., 1,342,135. June 1, 1920. Filed May 11, 1917. Serial No. 167,897.

Personals

Bruno Schettler, secretary of the Southern Illinois Superintendents' Association, and formerly superintendent of the Benton Coal Co., at Benton, Ill., is in a critical condition in a hospital at Centralia, Ill. He was injured in a mine at Sesser, Ill.

John S. Rogers, until recently with the firm of Dowel & Lafont, coal land dealers in Duquoin, Ill., has accepted a position in the Claim Department of the Old Ben Coal Corporation, at its offices in Christopher, Ill.

James Taylor, superintendent of the Arrow Coal Mining Co.'s mines at Arrow, Somerset County, Pa., has purchased a coal mine near Clarksburg, W. Va., and expects to leave about Sept. 1 for the scene of his new operation.

An award of hero medals to seven miners for rescuing fellow workers, whose lives were endangered by mine accidents during the last three years was announced recently by the Joseph A. Holmes Safety Association, an organization created in memory of the first director of the Bureau of Mines and the humanitarian work started by him. Three of those receiving medals gave their lives in attempting the rescue of companions and the medals will go to their nearest kin. The four miners, now living, who will receive the medals are **John L. Boardman**, of Butte, Montana; **Daniel Biowitch**, of Biwalik, Minn.; and **James Collins**, and **James Dilimirk**, both of Mullen, Idaho. The three men who lost their lives were **Michael Conroy**, **Peter Sheridan** and **James D. Moore**, all of Butte.

J. W. Howard has been placed in charge of the branch office just opened in Clarksburg, W. Va., by A. R. Hamilton & Co., coal brokers of Pittsburgh, Pa. Prior to his association with Hamilton & Co., Mr. Howard was connected with the J. E. Long Coal Co., in Clarksburg, W. Va.

W. J. Wardick has been selected as superintendent of the mining operations of the Ephraim Coal & Coke Co., at Thayer, W. Va.

W. R. J. Zimmerman, of Charleston, who for some time has been the treasurer of the Smokeless Coal Operators' Association of West Virginia, has resigned that post owing to the fact that he no longer has any smokeless holdings. **G. H. Caperton** of Charleston has been elected in his stead.

W. B. Troxell has been appointed traffic manager of the New River Coal Operators' Association, with headquarters at Charleston, W. Va. Mr. Troxell will give his entire time to transportation and traffic problems affecting the operations in the New River field; this will leave Mr. Lewis, the secretary of the association, entirely free to devote his time to other matters. Mr. Troxell served for three years with the Car Service section of the American Railroad Association. For a number of years he was also identified with the Pennsylvania R.R.

Association Activities

Scotts' Run Coal Operators' Association

The coal operators of Scotts' Run in the Monongalia County, W. Va., field have organized the Scotts' Run Coal Operators' Association to take the place of the Monongahela Coal Operators' Association recently organized and which it has been decided to disband.

The Scotts' Run operators concluded that inasmuch as conditions on Scotts' Run were different from those in other parts of the county it would be wiser to limit the association formed to the Scotts' Run territory so as to avoid loading local problems on a county organization.

Many of these operators hold membership in the Northern West Virginia Coal Operators' Association, and the new association was organized to supplement the workings of the larger body in dealing with local questions such as car supply, etc.

Logan Operators' Association

The Logan Operators' Association is behind a movement to secure the extension of the Virginian Ry. Co. from Elmore, in Wyoming County, so as to secure an additional outlet for the mines of the Logan County, W. Va., field. A decision to ask for such an extension of the Virginian road was reached by the Logan Operators' Association after a conference with President George W. Stevens of the Chesapeake & Ohio, at Huntington, at which time the Logan operators were not satisfied with arrangements for handling the output of Logan mines.

A committee of the association was designated to confer with the officials of the Virginian Ry. at New York on June 24. It is stated that as a result of the New York conference, the prospects of the Virginian extending its line to Gilbert are quite bright, and that arrangements are being made to raise \$2,000,000 in order to construct the line which would be about 50 miles in length.

Assurances have been given the management of the Virginian that the advantages of shipping over that road to the seaboard in the event of an extension to the Logan field would be such as to give the Virginian the bulk of tidewater tonnage from the Logan field in question.

Southern Indiana Coal Bureau

In the opinion of Harry W. Little, secretary of the Southern Indiana Coal Bureau (with headquarters in Evansville), Evansville in ten years hence will be the center of the Indiana mining industry.

At present Terre Haute holds that position. This is not due to the fact that mines in that part of the state are richer, but simply because the prairie city is in a more advantageous position since most of the coal mined in the state is sent to the North.

But—the time is not long off when the mines about Terre Haute will have become exhausted. Then it is that the industries of Indianapolis and of Gary will have to look to the coal fields of southern Indiana for fuel, of which Evansville will become the center. This change should take place within the next ten years, say mining experts who have studied closely the coal fields of the state.

The coal mined in this section is the No. 5 seam, which varies in thickness from four to eight feet in some instances as much as 11 ft. thick.

The normal output of the mines of this section of the state is estimated at 3,500,000 tons annually. The total output of the state aggregates 30,000,000 tons a year. Indianapolis and Gary consume by far the larger part of the coal mined in Indiana.

At present there are 53 mines in southern Indiana, the majority of which are in the vicinity of Evansville.

There are prospects of a number of new mines being sunk in this vicinity.

Obituary

Charles E. Kimball, of St. Louis, organizer of the Mt. Olive & Staunton Coal Co., of Staunton, Ill., and St. Louis, died recently at his home in East Hampton, Long Island. He was also vice president of the Litchfield & Madison R. R.

A. P. Austin, aged 53, prominent banker and coal and coke operator, died at Uniontown, Pa., July 9, following an attack of paralysis. He had been in ill health for several months. He was president of the Plumer Coke Co. and of the Gilmore Coke Co., and was a member of the J. V. Thompson Creditor's Committee. He is the second member of the committee to die since its organization in 1916, Allen F. Cooper, of Uniontown, being the other deceased member.

Trade Catalogs

Machine Tool Control. Cutler-Hammer Manufacturing Co., Milwaukee, Wis. Publication 845. Pp. 46; 8½ x 11 in.; illustrated. Description of machine tool controllers and their application noted.

G.-R Expansion Joint. Griscom-Russell Co., 90 West St., New York, N. Y. Bulletin 1010. Pp. 7; 6 x 9 in.; illustrated. Description of expansion joints for low pressure work.

Lifting Magnets. Cutler-Hammer Manufacturing Co., Milwaukee, Wis. Publication 855. Pp. 8; 8½ x 11 in.; illustrated. Description of a circular type of lifting magnet.

Flexible Shafting. Stow Manufacturing Co., Inc., Binghamton, N. Y. Bulletin 20. Pp. 15; 6 x 9 in.; illustrated. Description of shafting and application to various tools.

Shoveloder. The Lake Superior Loader Co., Duluth, Minn. Pamphlet. Pp. 1, 15; 6 x 9 in.; illustrated. Description of a mechanical mucker and its operation.

Pennsylvania Air Compressors. Pennsylvania Pump & Compressor Co., Easton, Pa. Bulletin 100. Pp. 11; 6 x 9 in.; illustrated. Description of the different types of compressors made by the Pennsylvania company.

Bundy Oil Separator. The Griscom-Russell Co., 90 West St., New York, N. Y. Bulletin 1130. Pp. 11; 6 x 9 in.; illustrated. Description of the separator with some facts of interest to prospective users.

Coming Meetings

American Mining Congress will hold its annual meeting at Denver, Col., Nov. 15. Secretary, J. F. Callbreath, Munsey Building, Washington, D. C.

American Institute of Mining & Metallurgical Engineers will hold its fall meeting Aug. 20 to Sept. 3. It is proposed to leave Buffalo by steamer and cruise through the Lakes, the first stop being at Houghton, Mich., after which the party will visit Duluth and the Iron Ranges of Minnesota, spending a day or two in Minneapolis on its return. Secretary, Bradley Stoughton, 29 West 38th St., New York City.

New York State Coal Merchants' Association will hold its annual meeting Sept. 9, 10 and 11 at Richfield Springs, N. Y. Treasurer, G. W. F. Woodside, Albany, N. Y.

Illinois and Wisconsin Retail Coal Dealers' Association's annual meeting Aug. 4 and 5 at Milwaukee, Wis. Secretary, I. L. Runyan, Chicago, Ill.

The Rocky Mountain Coal Mining Institute, in conjunction with the Colorado Metal Mining Association, the local chapters of the American Mining Congress and the American Institute of Mining & Metallurgical Engineers, and the International First Aid Meet will hold its annual meeting Sept. 9, 10 and 11 at Denver, Col. Secretary, F. W. Whiteside, Denver, Col.

National Safety Council will hold its 1920 congress on Sept. 27 to Oct. 1, inclusive, at Milwaukee, Wis. General Manager, C. W. Price, Chicago, Ill.

Oklahoma Coal Operators' Association will hold its annual meeting Sept. 14 at McAlester, Okla. Secretary, F. F. La Grave, McAlester, Okla.